

# DCR-TRV380/TRV480/TRV480E

RMT-831

## SERVICE MANUAL

Ver 1.0 2004.11

Revision History

How to use  
Acrobat Reader



M2000 MECHANISM

Photo: DCR-TRV480E

**DCR-TRV480**

US Model  
Canadian Model

**DCR-TRV480E**

AEP Model  
UK Model  
North European Model  
Australian Model

**DCR-TRV380/  
TRV480/  
TRV480E**

E Model

### Link

<a href="#">SPECIFICATIONS</a>	<a href="#">BLOCK DIAGRAMS</a>	<a href="#">PRINTED WIRING BOARDS</a>
<a href="#">SERVICE NOTE</a>	<a href="#">FRAME SCHEMATIC DIAGRAMS</a>	<a href="#">REPAIR PARTS LIST</a>
<a href="#">DISASSEMBLY</a>	<a href="#">SCHEMATIC DIAGRAMS</a>	

- For ADJUSTMENTS (SECTION 6), refer to SERVICE MANUAL, ADJ (9-876-781-51).
- For MECHANISM ADJUSTMENTS, refer to the “8mm Video MECHANICAL ADJUSTMENT MANUAL IX **M2000 MECHANISM**” (9-929-861-11).
- **Reference No. search on printed wiring boards is available.**
- **Table for differences of function of each model.**
- **TO TAKE OUT A CASSETTE WHEN NOT EJECT (FORCE EJECT)**
- **HELP: Sheet attachment positions and procedures of processing the flexible boards/harnesses are shown.**

#### On the VC-345 board

This service manual provides the information that is premised the circuit board replacement service and not intended repair inside the VC-345 board.

Therefore, schematic diagrams, printed wiring boards, mounted parts location and electrical parts list of the VC-345 board are not shown.

The following pages are not shown.

Schematic diagrams .....	Pages 4-9 to 4-44
Printed wiring boards .....	Pages 4-59 to 4-62
Waveforms .....	Pages 4-70 to 4-75
Mounted parts location .....	Pages 4-77 and 4-78
Electrical parts list.....	Pages 5-16 to 5-24

**Digital 8 DIGITAL VIDEO CAMERA RECORDER**

**SONY®**



## SPECIFICATIONS

### Video camera recorder

#### System

##### Video recording system

2 rotary heads, Helical scanning system

##### Still image recording system

Exif Ver. 2.2<sup>\*1</sup>

<sup>\*1</sup> "Exif" is a file format for still images, established by the JEITA (Japan Electronics and Information Technology Industries Association). Files in this format can have additional information such as your camcorder's setting information at the time of recording.

##### Audio recording system

Rotary heads, PCM system

Quantization: 12 bits (Fs 32 kHz, stereo 1, stereo 2), 16 bits (Fs 48 kHz, stereo)

##### Video signal

DCR-TRV380/TRV480:

NTSC color, EIA standards

DCR-TRV480E:

PAL color, CCIR standards

##### Usable cassette

8 mm video format cassette

##### Tape speed

DCR-TRV380/TRV480:

SP: Approx. 28.67 mm/s

LP: Approx. 19.11 mm/s

DCR-TRV480E:

SP: Approx. 28.70 mm/s

LP: Approx. 19.13 mm/s

##### Recording/play back time

DCR-TRV380/TRV480:

(using 120 min. Hi8/Digital8 video cassette)

DCR-TRV480E:

(using 90 min. Hi8/Digital8 video cassette)

SP: 60 min

LP: 90 min

##### Fast forward/rewind time

DCR-TRV380/TRV480:

(using 120 min. Hi8/Digital8 video cassette)

DCR-TRV480E:

(using 90 min. Hi8/Digital8 video cassette)

Approx. 5 min

##### Viewfinder

Electric viewfinder (monochrome)

##### Image device

3.0 mm (1/6 type) CCD (Charge Coupled Device)

DCR-TRV380/TRV480:

Gross: Approx. 460 000 pixels

Effective (still): Approx. 290 000 pixels

Effective (movie): Approx. 290 000 pixels

DCR-TRV480E:

Gross: Approx. 540 000 pixels

Effective (still): Approx. 350 000 pixels

Effective (movie): Approx. 350 000 pixels

#### Lens

Combined power zoom lens

Filter diameter: 37 mm (1 7/16 in.)

20 × (Optical), 990 × (Digital)

F = 1.6 ~ 2.4

#### Focal length

2.5 - 50 mm (1/8 - 2 in.)

When converted to a 35 mm still camera

In CAMERA-TAPE:

42 - 840 mm (1 11/16 - 33 1/8 in.)

In CAMERA-MEMORY:

42 - 840 mm (1 11/16 - 33 1/8 in.)

#### Color temperature

Auto

#### Minimum illumination

4 lx (lux) (F 1.6)

0 lx (lux) (during the NightShot plus function)<sup>\*2</sup>

<sup>\*2</sup> Objects unable to be seen due to the dark can be shot with infrared lighting.

#### Input/Output connectors

##### Audio/Video input/output

AV MINIJACK

Video signal: 1 V<sub>p-p</sub>, 75 Ω (ohms),

unbalanced, sync negative

Audio signal: 327 mV (at output impedance

more than 47 kΩ (kilohms)), Input impedance

more than 47 kΩ (kilohms), Output impedance

with less than 2.2 kΩ (kilohms)

Stereo minijack (φ 3.5mm)

##### DV input/output

4-pin connector

##### USB jack

mini-B

#### LCD screen

##### Picture

6.2 cm (2.5 type)

##### Total dot number

123 200 (560 × 220)

#### General

##### Power requirements

DC 7.2 V (battery pack)

DC 8.4 V (AC Adaptor)

##### Average power consumption (when using the battery pack)

During camera recording using the viewfinder

2.9 W

During camera recording using the LCD

3.8 W

##### Operating temperature

0°C to 40°C (32°F to 104°F)

##### Storage temperature

-20°C to +60°C (-4°F to +140°F)

##### Dimensions (approx.)

85 × 98 × 151 mm (3 3/8 × 3 7/8 × 6 in.)

(w/h/d)

#### Mass (Approx.)

800 g (1 lb 12 oz) main unit only

940 g (2 lb 1 oz) including the NP-FM30

rechargeable battery pack, Hi8/Digital8

cassette, lens cap, and shoulder strap.

#### Supplied accessories

AC Adaptor (1)

Power cord (1)

Lens cap (1)

Shoulder strap (1)

Wireless Remote commander RMT-831 (1)

A/V connecting cable (1)

USB cable (1)

Rechargeable battery pack NP-FM30 (1)

CD-ROM "Picture Package Ver.1.5" (1)

Camera Operations Guide (1)

See page 5-25.

#### AC Adaptor AC-L15A/L15B

##### Power requirements

AC 100 - 240 V, 50/60 Hz

##### Current consumption

0.35 - 0.18 A

##### Power consumption

18 W

##### Output voltage

DC 8.4 V, 1.5 A

##### Operating temperature

0°C to 40°C (32°F to 104°F)

##### Storage temperature

-20°C to +60°C (-4°F to +140°F)

##### Dimensions (approx.)

56 × 31 × 100 mm (2 1/4 × 1 1/4 × 4 in.) (w/h/d) excluding the projecting parts

##### Mass (approx.)

190 g (6.7 oz) excluding the power cord

#### Rechargeable battery pack (NP-FM30)

##### Maximum output voltage

DC 8.4 V

##### Output voltage

DC 7.2 V

##### Capacity

5.0 Wh (700 mAh)

##### Dimensions (approx.)

38.2 × 20.5 × 55.6 mm

(1 9/16 × 1 3/16 × 2 1/4 in.) (w/h/d)

##### Mass (approx.)

65 g (2.3 oz)

##### Operating temperature

0°C to 40°C (32°F to 104°F)

##### Type

Lithium ion

Design and specifications are subject to change without notice.

**Table for differences of function**

Model	DCR-TRV380	DCR-TRV480	DCR-TRV480E
Destination	E	US, CND, E	AEP, UK, NE, E, AUS
Color system	NTSC	NTSC	PAL
Playback system	Digital8	Hi8/8/Digital8	Hi8/8/Digital8

- Abbreviation  
AUS : Australian model  
CND : Canadian model  
NE : North European model

**CAUTION**

Danger of explosion if battery is incorrectly replaced.  
Replace only with the same or equivalent type.

**SAFETY-RELATED COMPONENT WARNING!!**

**COMPONENTS IDENTIFIED BY MARK  $\triangle$  OR DOTTED LINE WITH MARK  $\triangle$  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.**

**ATTENTION AU COMPOSANT AYANT RAPPORT  
À LA SÉCURITÉ!**

**LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE  $\triangle$  SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.**

## SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. FLEXIBLE Circuit Board Repairing
  - Keep the temperature of the soldering iron around 270°C during repairing.
  - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
  - Be careful not to apply force on the conductor when soldering or unsoldering.

### Unleaded solder

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.  
(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)



### : LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40°C higher than ordinary solder.  
Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.  
Soldering irons using a temperature regulator should be set to about 350°C.  
Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity  
Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder  
It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

## TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>	<u>Section</u>	<u>Title</u>	<u>Page</u>
<b>1. SERVICE NOTE</b>			<b>5. REPAIR PARTS LIST</b>		
1-1.	Note for Repair .....	1-1	5-1.	Exploded Views .....	5-2
1-2.	Power Supply During Repairs .....	1-1	5-1-1.	Overall Assembly .....	5-2
1-3.	To Take Out a Cassette when not Eject (Force Eject) .....	1-2	5-1-2.	Front Panel Block .....	5-3
1-4.	Self-diagnosis Function .....	1-3	5-1-3.	Lens Block .....	5-4
1-4-1.	Self-diagnosis Function .....	1-3	5-1-4.	LCD Block .....	5-5
1-4-2.	Self-diagnosis Display .....	1-3	5-1-5.	Cabinet R Block .....	5-6
1-4-3.	Self-diagnosis Code Table .....	1-4	5-1-6.	EVF Block .....	5-7
<b>2. DISASSEMBLY</b>			5-1-7.	Battery Panel Block .....	5-8
2-1.	Flow Chart .....	2-1	5-1-8.	MD Frame Block .....	5-9
2-2.	Mechanism Deck Service Position .....	2-3	5-1-9.	Cassette Compartment Assembly, Drum Assembly .....	5-10
2-3.	LCD Service Position .....	2-5	5-1-10.	LS Chassis Block Assembly .....	5-11
2-4.	Circuit Boards Location .....	2-6	5-1-11.	Mechanical Chassis Block Assembly-1 .....	5-12
2-5.	Flexible Boards Location .....	2-6	5-1-12.	Mechanical Chassis Block Assembly-2 .....	5-13
<b>3. BLOCK DIAGRAMS</b>			5-2.	Electrical Parts List .....	5-14
3-1.	Overall Block Diagram (1/6) .....	3-1			
3-2.	Overall Block Diagram (2/6) .....	3-3			
3-3.	Overall Block Diagram (3/6) .....	3-5			
3-4.	Overall Block Diagram (4/6) .....	3-7			
3-5.	Overall Block Diagram (5/6) .....	3-9			
3-6.	Overall Block Diagram (6/6) .....	3-11			
3-7.	Power Block Diagram (1/3) .....	3-13			
3-8.	Power Block Diagram (2/3) .....	3-15			
3-9.	Power Block Diagram (3/3) .....	3-17			
<b>4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS</b>					
4-1.	Frame Schematic Diagram .....	4-1			
4-2.	Schematic Diagrams .....	4-5			
	CD-472 (CCD IMAGER) .....	4-7			
	PD-205 (LCD DRIVER, BACKLIGHT DRIVE) .....	4-45			
	SI-041 (STEADYSHOT, JACK) .....	4-47			
	FP-792 FLEXIBLE .....	4-47			
	FP-228, FP-299, FP-300, FP-301, FP-302, FP-802				
	FLEXIBLE .....	4-49			
	CONTROL KEY BLOCK				
	(SS-5100, PR-5100, SB-9000) .....	4-50			
	CONTROL KEY BLOCK (CF-5100) .....	4-51			
4-3.	Printed Wiring Boards .....	4-55			
	CD-472 .....	4-57			
	PD-205 .....	4-63			
	SI-041, FP-792 FLEXIBLE .....	4-65			
	FP-228, FP-299, FP-300, FP-301, FP-302, FP-802				
	FLEXIBLE .....	4-67			
4-4.	Waveforms .....	4-69			
4-5.	Mounted Parts Location .....	4-79			

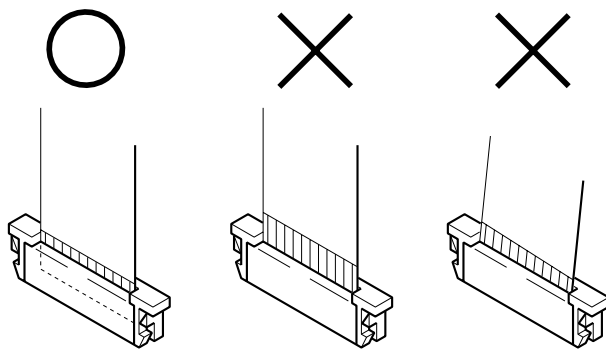


## 1. SERVICE NOTE

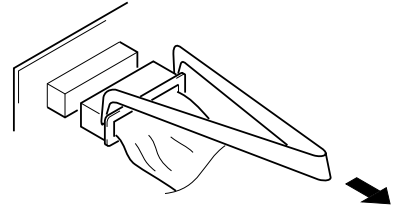
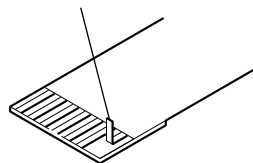
### 1-1. NOTE FOR REPAIR

Make sure that the flat cable and flexible board are not cracked or bent at the terminal.  
Do not insert the cable insufficiently nor crookedly.

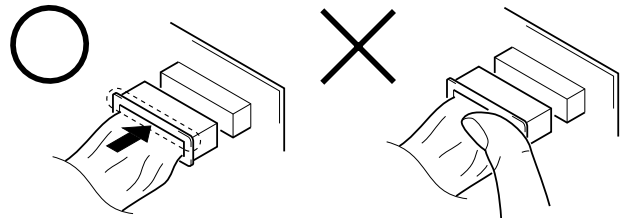
When remove a connector, don't pull at wire of connector.  
It is possible that a wire is snapped.



Cut and remove the part of gilt which comes off at the point.  
(Be careful or some pieces of gilt may be left inside)



When installing a connector, don't press down at wire of connector.  
It is possible that a wire is snapped.



### 1-2. POWER SUPPLY DURING REPAIRS

In this unit, about 10 seconds after power is supplied to the battery terminal using the regulated power supply (8.4V), the power is shut off so that the unit cannot operate.

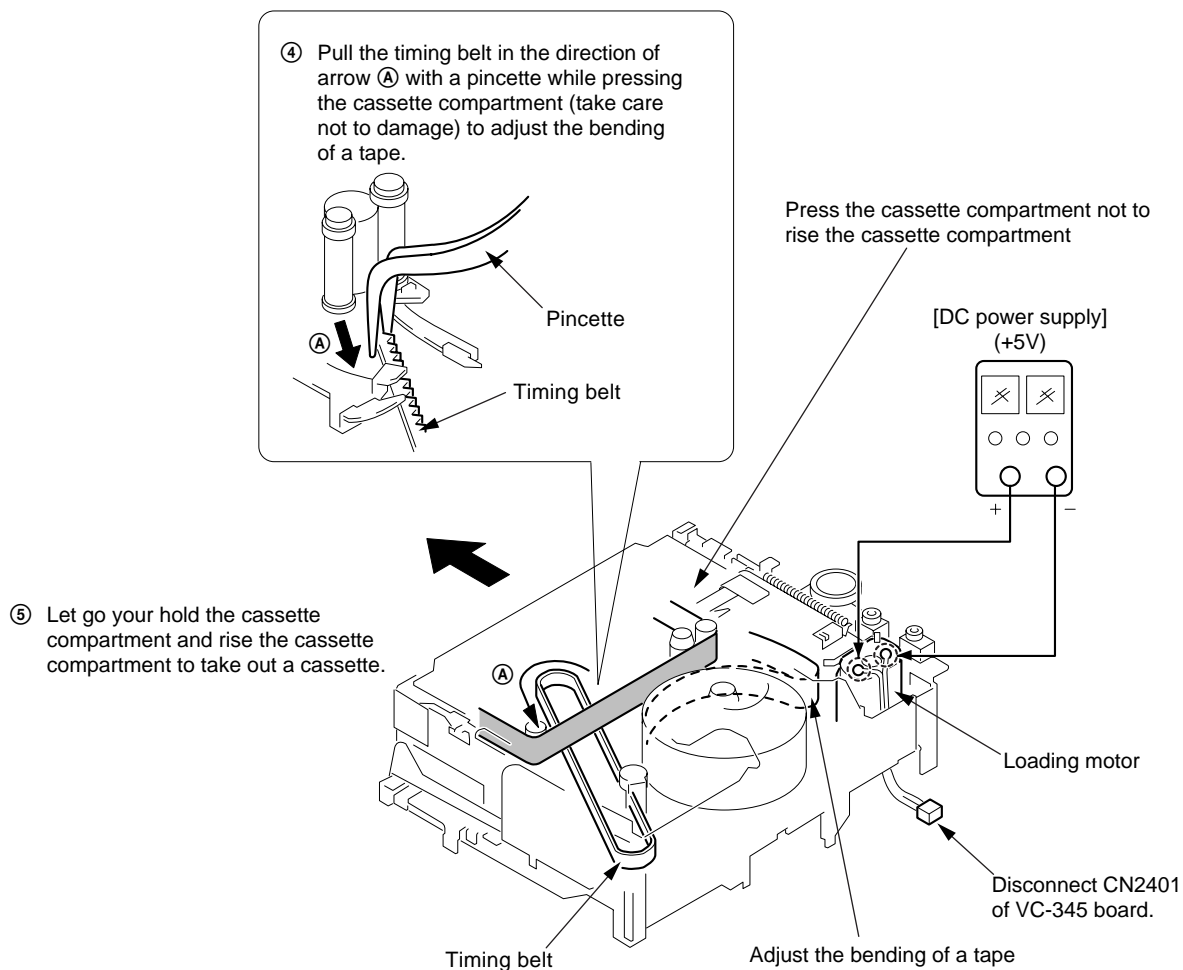
The following method is available to prevent this.

#### Method 1.

Use the AC power adaptor (AC-L10, AC-VQ800 etc.).

### 1-3. TO TAKE OUT A CASSETTE WHEN NOT EJECT (FORCE EJECT)

- ① Refer to “SECTION 2 DISASSEMBLY” to remove the mechanism deck block.
- ② Disconnect CN2401 (2P) of VC-345 board.
- ③ Add +5V from the DC POWER SUPPLY and unload with a pressing the cassette compartment.



## 1-4. SELF-DIAGNOSIS FUNCTION

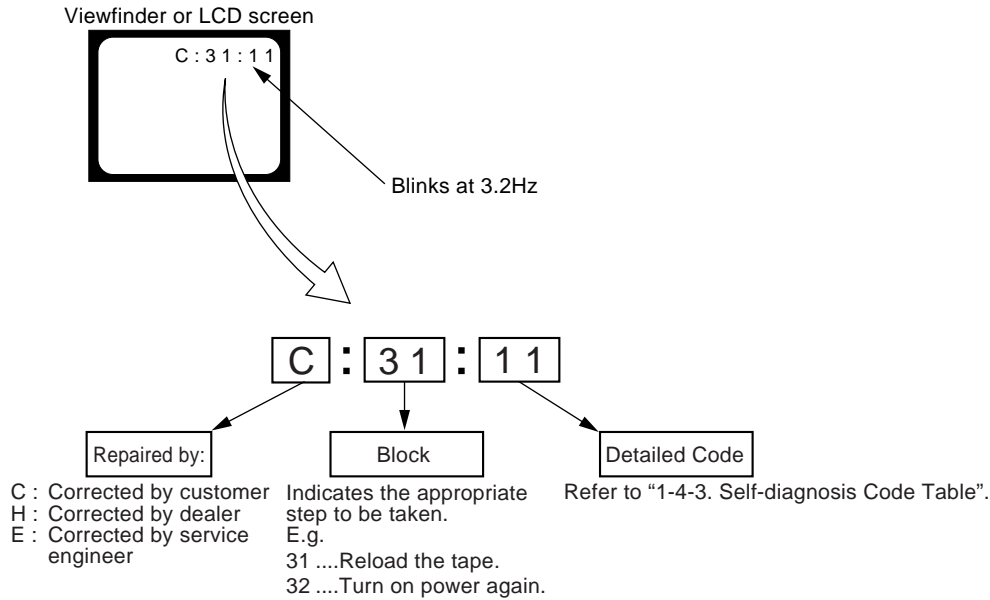
### 1-4-1. Self-diagnosis Function

When problems occur while the unit is operating, the self-diagnosis function starts working, and displays on the viewfinder or LCD screen what to do. This function consists of two display; self-diagnosis display and service mode display.

Details of the self-diagnosis functions are provided in the Instruction manual.

### 1-4-2. Self-diagnosis Display

When problems occur while the unit is operating, the counter of the viewfinder or LCD screen shows a 4-digit display consisting of an alphabet and numbers, which blinks at 3.2 Hz. This 5-character display indicates the “repaired by:”, “block” in which the problem occurred, and “detailed code” of the problem.



### 1-4-3. Self-diagnosis Code Table

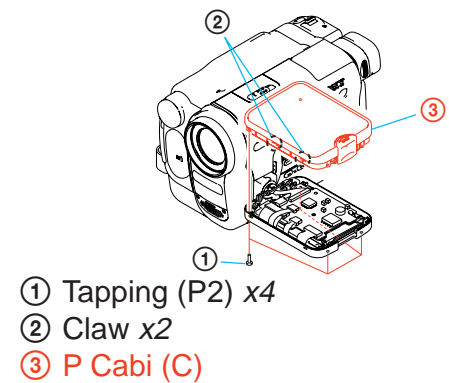
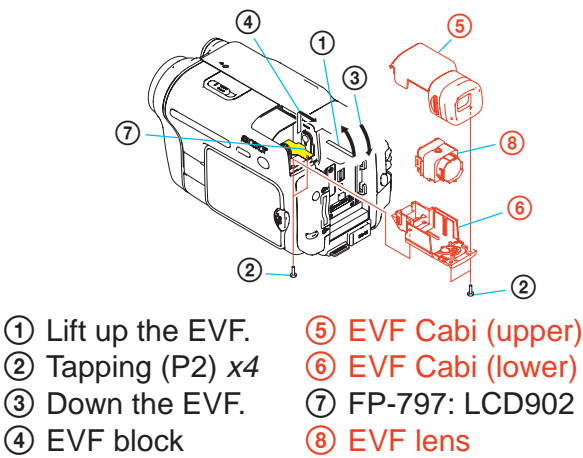
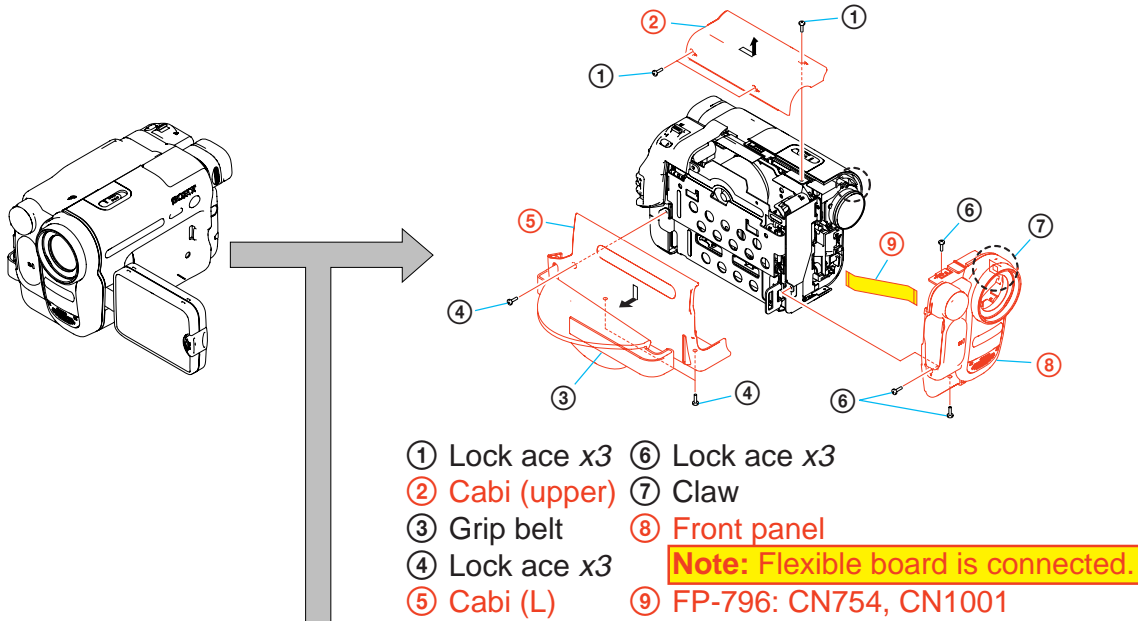
Repaired by:	Self-diagnosis Code		Symptom/State	Correction
	Block Function	Detailed Code		
C	0 4	0 0	Non-standard battery is used.	Use the InfoLITHIUM battery.
C	2 1	0 0	Condensation.	Remove the cassette, and insert it again after one hour.
C	2 2	0 0	Video head is dirty.	Clean with the optional cleaning cassette.
C	3 1	1 0	LOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3 1	1 1	UNLOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3 1	2 0	T reel side tape slacking when unloading.	Load the tape again, and perform operations from the beginning.
C	3 1	2 1	S reel side tape slacking when unloading.	Load the tape again, and perform operations from the beginning.
C	3 1	2 2	T reel fault.	Load the tape again, and perform operations from the beginning.
C	3 1	2 3	S reel fault.	Load the tape again, and perform operations from the beginning.
C	3 1	3 0	FG fault when starting capstan.	Load the tape again, and perform operations from the beginning.
C	3 1	3 1	FG fault during normal capstan operations.	Load the tape again, and perform operations from the beginning.
C	3 1	4 0	FG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3 1	4 1	PG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3 1	4 2	FG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3 1	4 3	PG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3 1	4 4	Phase fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3 2	1 0	LOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	1 1	UNLOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 0	T reel side tape slacking when unloading.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 1	S reel side tape slacking when unloading.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 2	T reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 3	S reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	3 0	FG fault when starting capstan.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	3 1	FG fault during normal capstan operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 0	FG fault when starting drum.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 1	PG fault when starting drum.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 2	FG fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 3	PG fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 4	Phase fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.

Self-diagnosis Code			Symptom/State	Correction
Repaired by:	Block Function	Detailed Code		
E	6 1	0 0	Difficult to adjust focus (Cannot initialize focus.)	Inspect the lens block focus reset sensor (Pin ⑫ of CN1551 of VC-345 board) when focusing is performed when the control dial is rotated in the focus manual mode and the focus motor drive circuit (IC1554 of VC-345 board) when the focusing is not performed.
E	6 1	1 0	Zoom operations fault (Cannot initialize zoom lens.)	Inspect the lens block zoom reset sensor (Pin ⑬ of CN1551 of VC-345 board) when zooming is performed when the zoom switch is operated and the zoom motor drive circuit (IC1554 of VC-345board) when zooming is not performed.
E	6 2	0 0	Steadyshot function does not work well. (With pitch angular velocity sensor output stopped.)	Inspect pitch angular velocity sensor (SE752 of SI-041 board) peripheral circuits.
E	6 2	0 1	Steadyshot function does not work well. (With yaw angular velocity sensor output stopped.)	Inspect yaw angular velocity sensor (SE751 of SI-041 board) peripheral circuits.

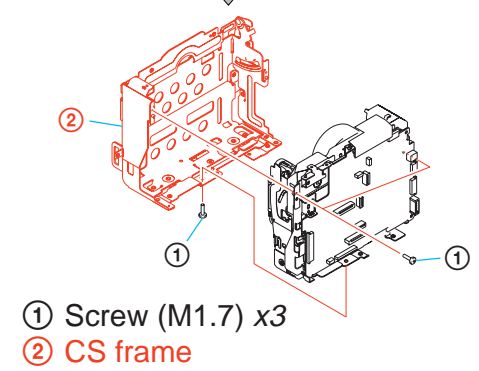
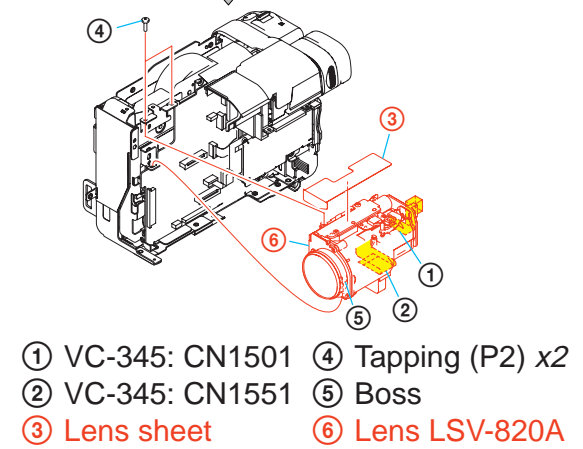
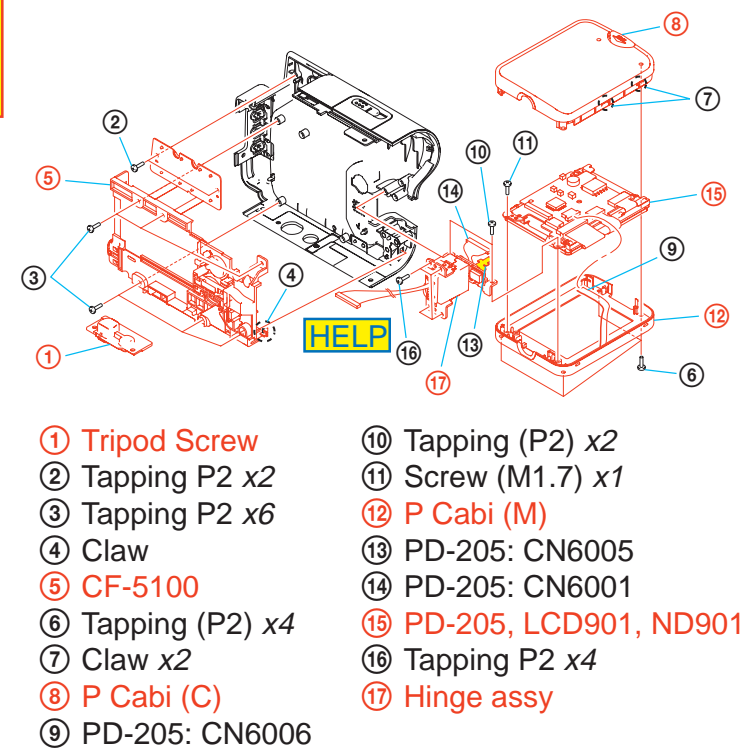
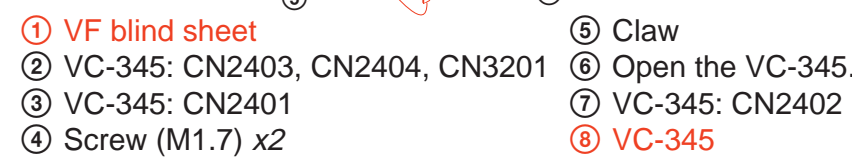
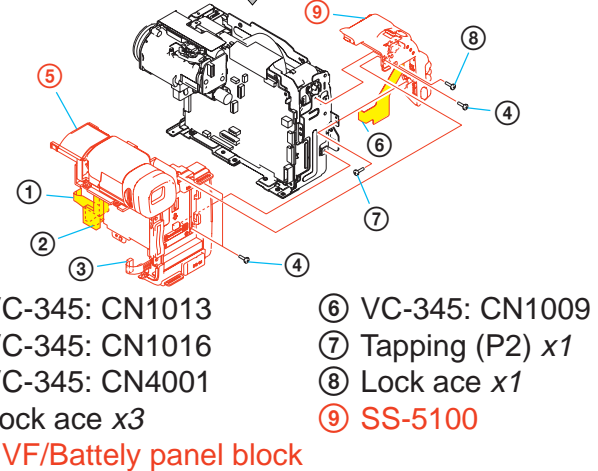
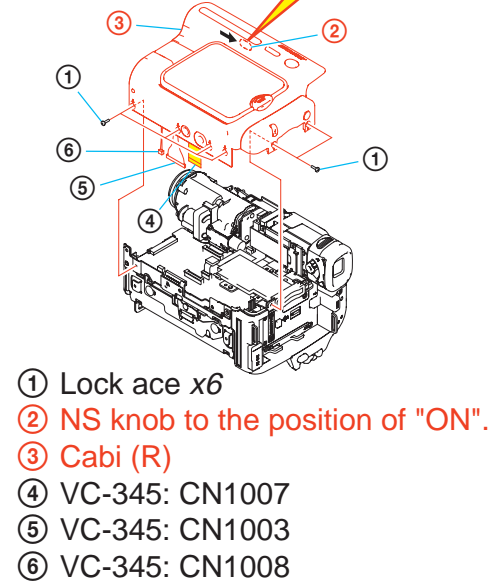
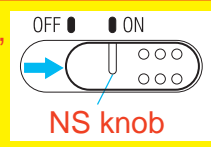
## 2. DISASSEMBLY

### 2-1. FLOW CHART

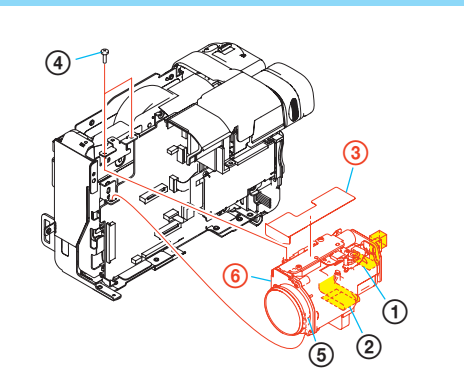
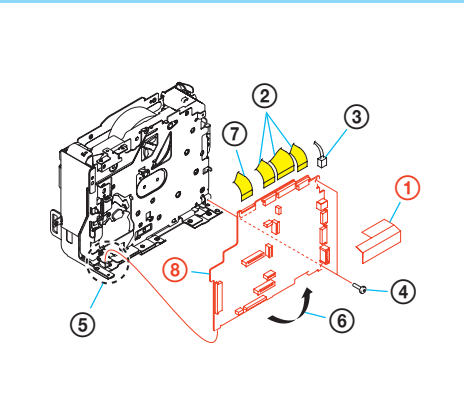
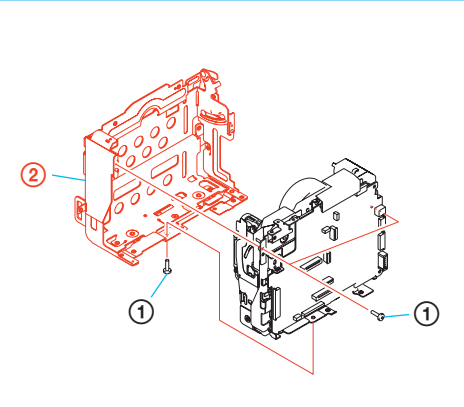
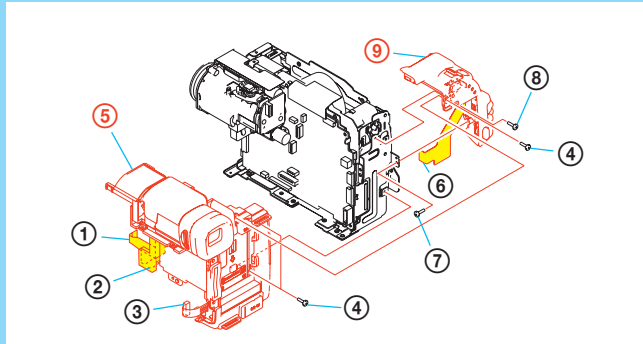
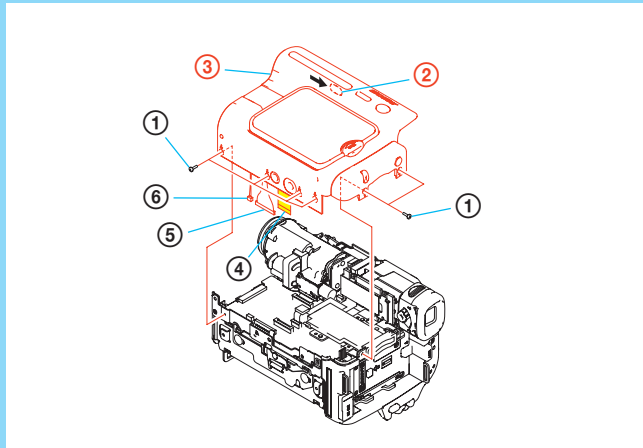
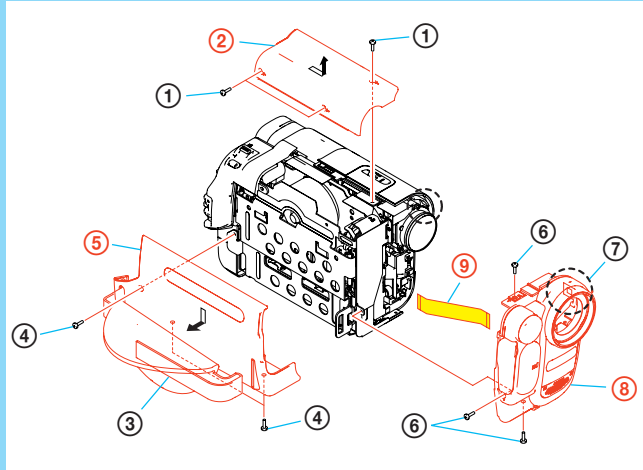
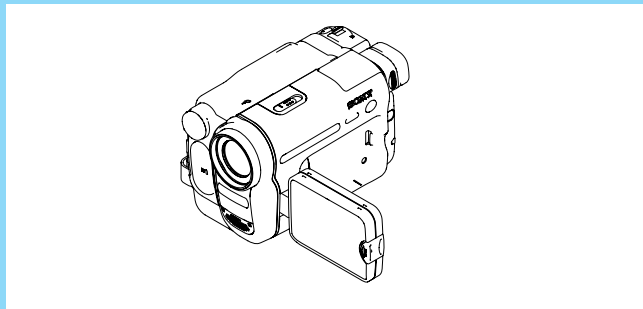
The following flow chart shows the disassembly procedure.



**Note:** When you remove Cabinet (R) Block, or when you assembly, please slide NS knob to the position of "ON".



2-2. MECHANISM DECK SERVICE POSITION



Connection to Check the Mechanism deck

To check the mechanism deck, set the Camera or VTR to the "Forced power ON" mode. (Or, connect the control key block (SS-5100) to the CN1009 of VC-345 board and set the power switch to the "CAMERA" or "PLAY/EDIT" mode.) Operate the Camera functions of the zoom and focus, the VTR function using the adjustment remote commander (with the HOLD switch set in the OFF position).

Setting the "Forced Camera Power ON" mode

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: A, address: 10, set data: 01 and press the PAUSE button of the adjustment remote commander.

Setting the "Forced VTR Power ON" mode

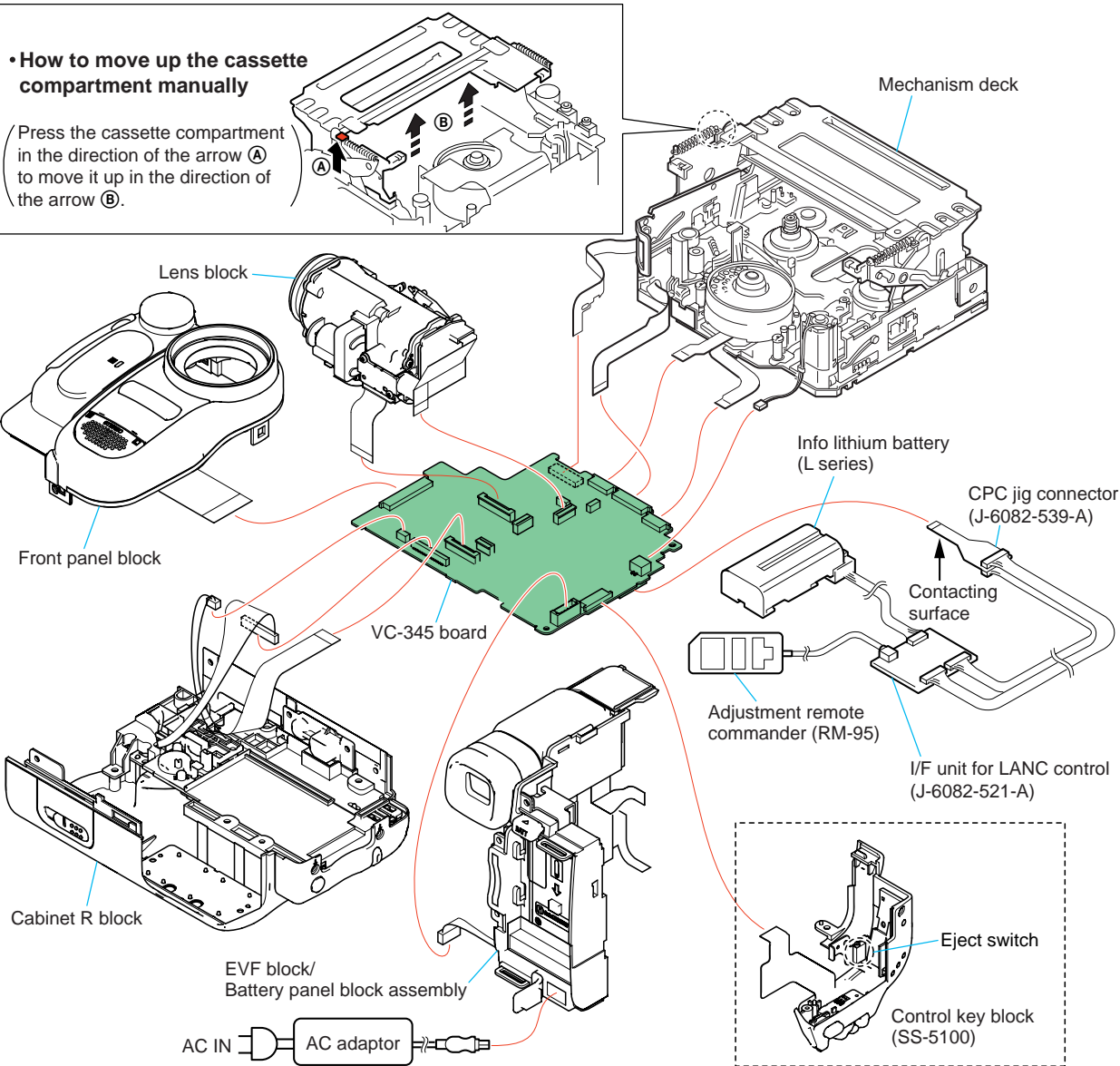
- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: A, address: 10, set data: 02 and press the PAUSE button of the adjustment remote commander.

Exiting the "Forced Power ON" mode

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: A, address: 10, data: 00, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 0, address: 01, and set data: 00.

•How to move up the cassette compartment manually

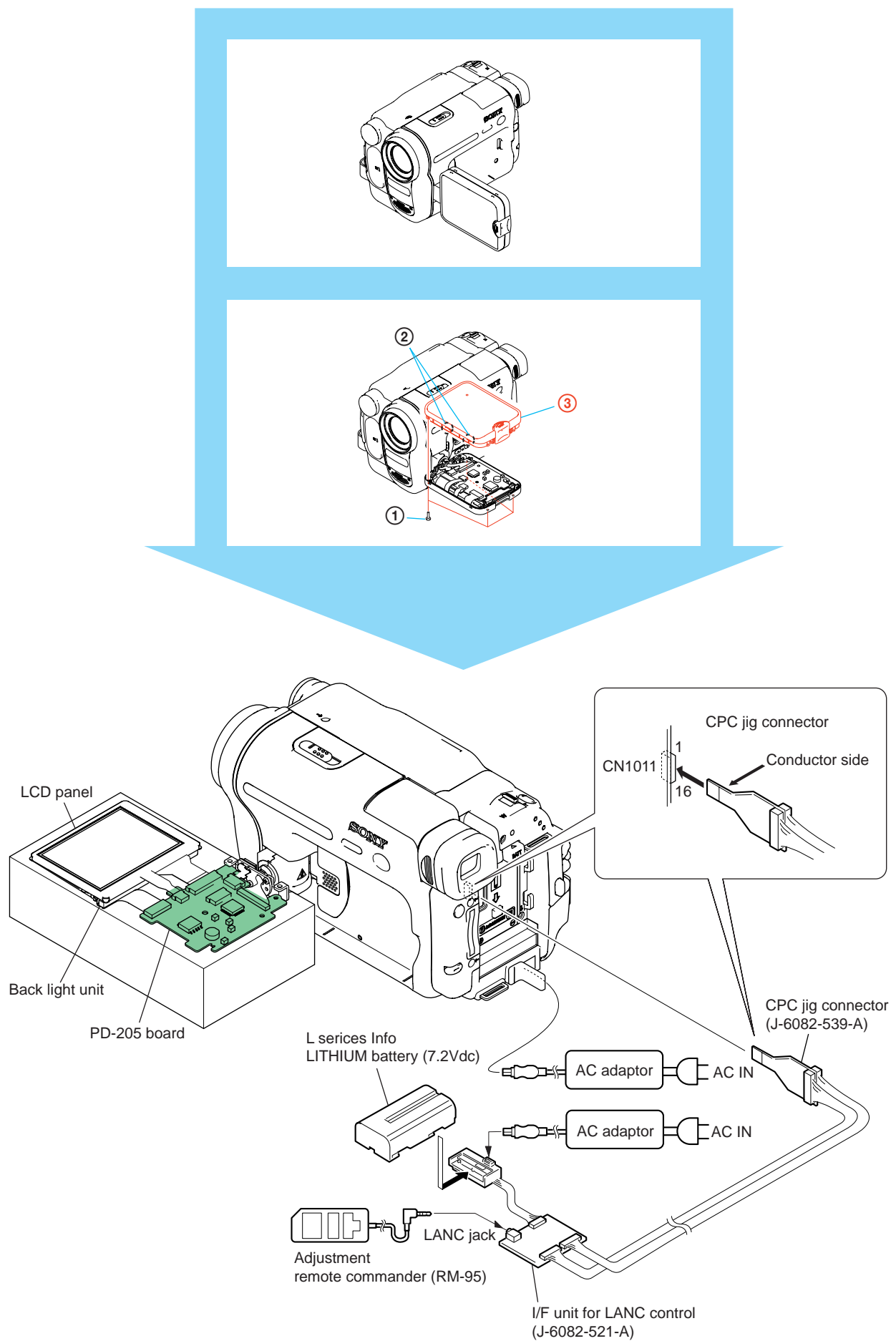
(Press the cassette compartment in the direction of the arrow A to move it up in the direction of the arrow B.)



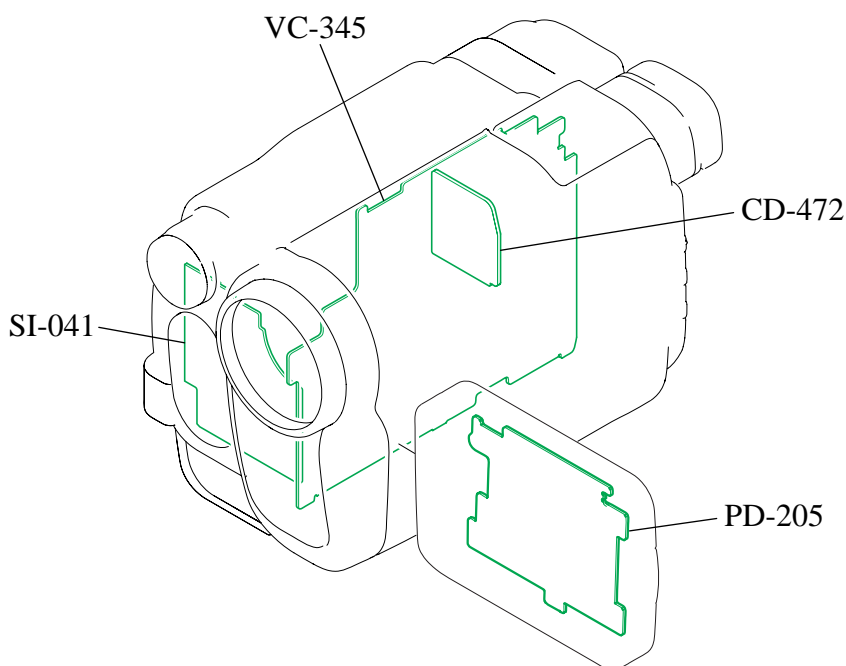
When exiting the "Forced Power ON" mode, connect the control key block (SS-5100) to the CN1009 of VC-345 board. Or, when ejecting the cassette, connect the control key block (SS-5100) to the CN1009 of VC-345 board, and press the Eject switch.



## 2-3. LCD SERVICE POSITION

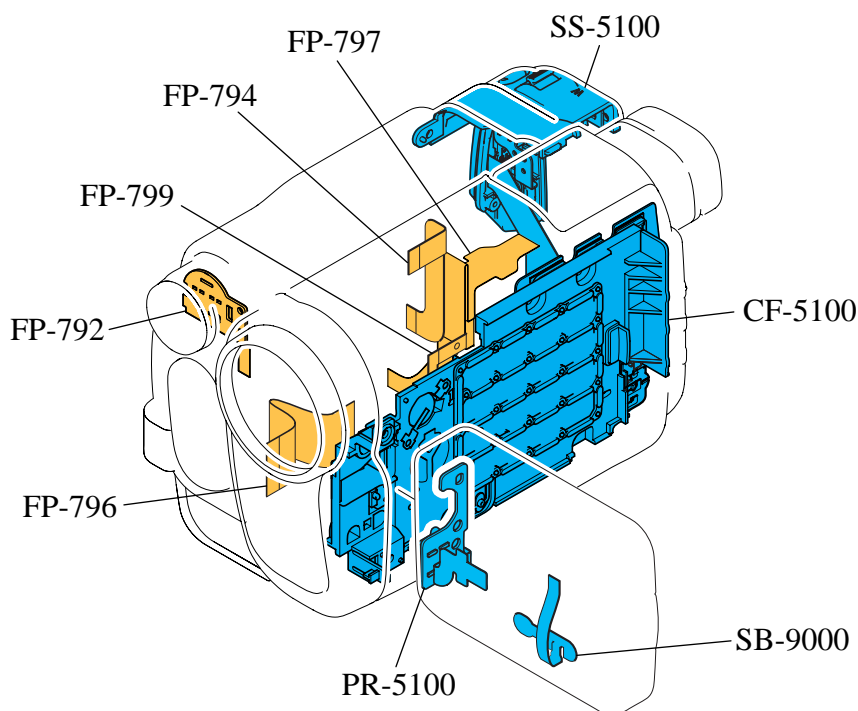


## 2-4. CIRCUIT BOARDS LOCATION



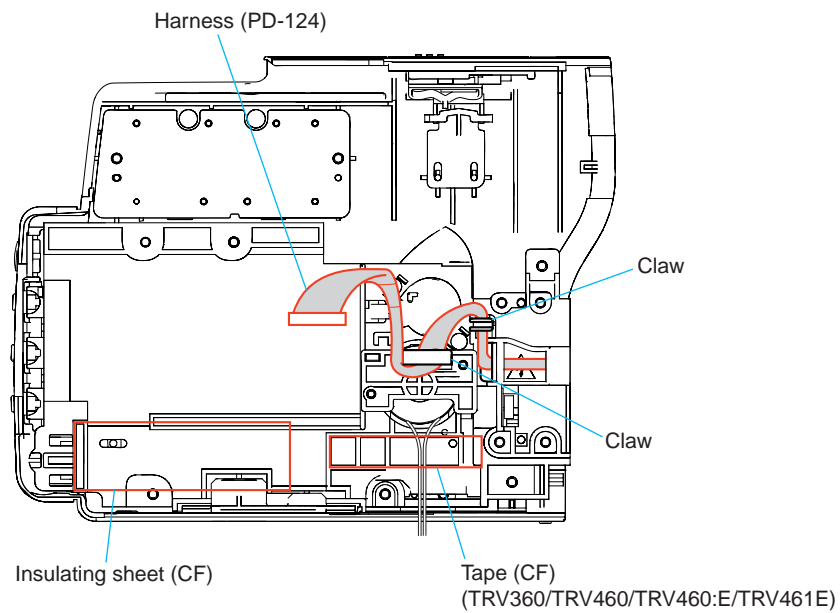
Board Name	Function
CD-472	CCD IMAGER
VC-345	A/D CONVERTER, TIMING GENERATOR, VIDEO/AUDIO DSP, LENS CONTROL, LENS DRIVE, Hi8/Std8 VTR PROCESS, VIDEO IN/OUT , DV SIGNAL PROCESS, REC/PB AMP, DV INTERFACE, STEADYSHOT, Hi8/Std8 PB AMP, USB/MODE CONTROL, MS INTERFACE, MEMORY, HI CONTROL, CAMERA/MECHA CONTROL, SERVO, AUDIO, DC CONTROL, CONNECTOR
PD-205	LCD DRIVE, BACKLIGHT DRIVE
SI-041	STEADYSHOT, JACK

## 2-5. FLEXIBLE BOARDS LOCATION



# HELP

Sheet attachment positions and procedures of processing the flexible boards/harnesses are shown.



**Note:** Close the LCD panel, when you work.

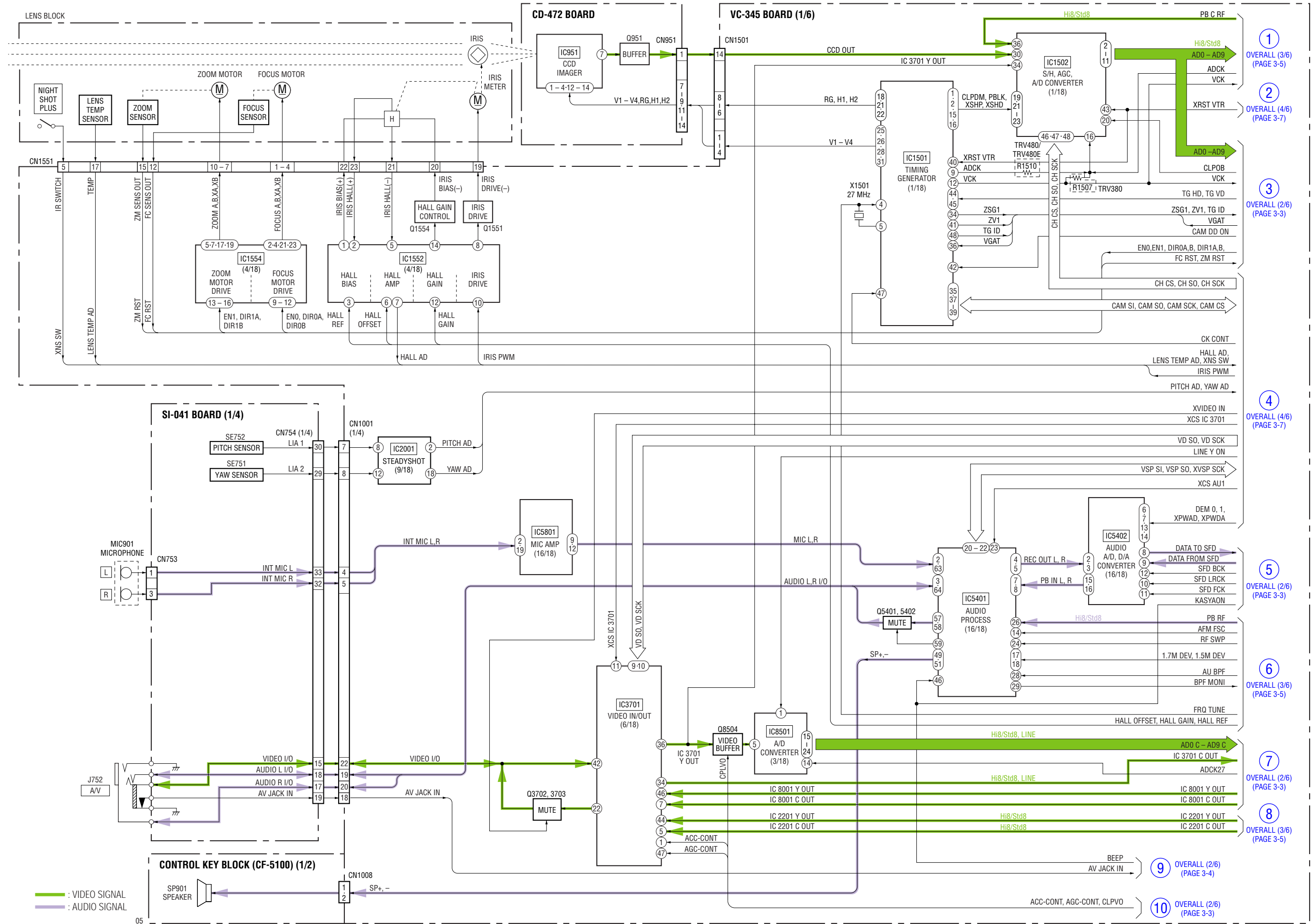
### 3. BLOCK DIAGRAMS

#### Link

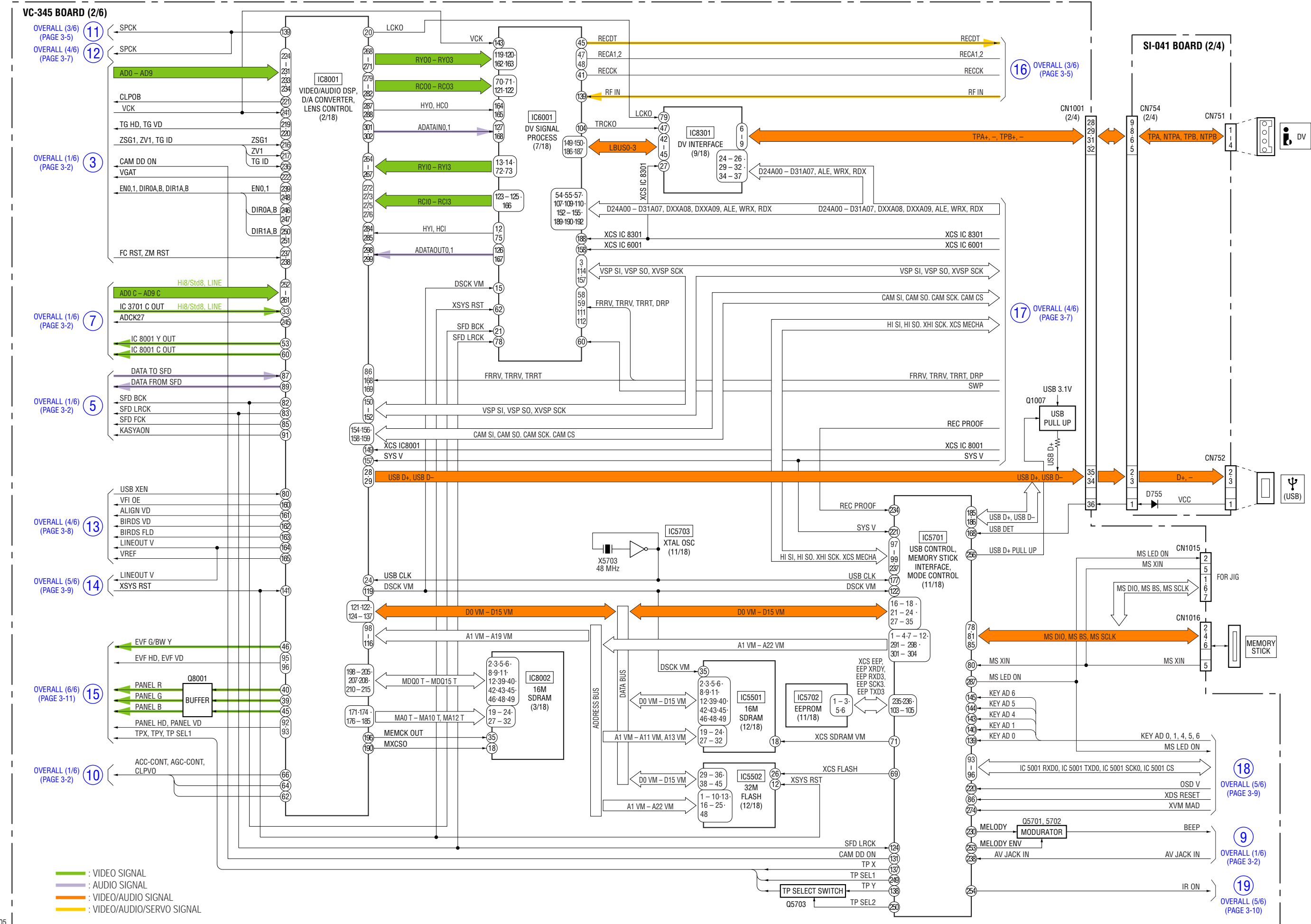
<a href="#">OVERALL BLOCK DIAGRAM (1/6)</a>	<a href="#">OVERALL BLOCK DIAGRAM (6/6)</a>
<a href="#">OVERALL BLOCK DIAGRAM (2/6)</a>	<a href="#">POWER BLOCK DIAGRAM (1/3)</a>
<a href="#">OVERALL BLOCK DIAGRAM (3/6)</a>	<a href="#">POWER BLOCK DIAGRAM (2/3)</a>
<a href="#">OVERALL BLOCK DIAGRAM (4/6)</a>	<a href="#">POWER BLOCK DIAGRAM (3/3)</a>
<a href="#">OVERALL BLOCK DIAGRAM (5/6)</a>	

### 3. BLOCK DIAGRAMS

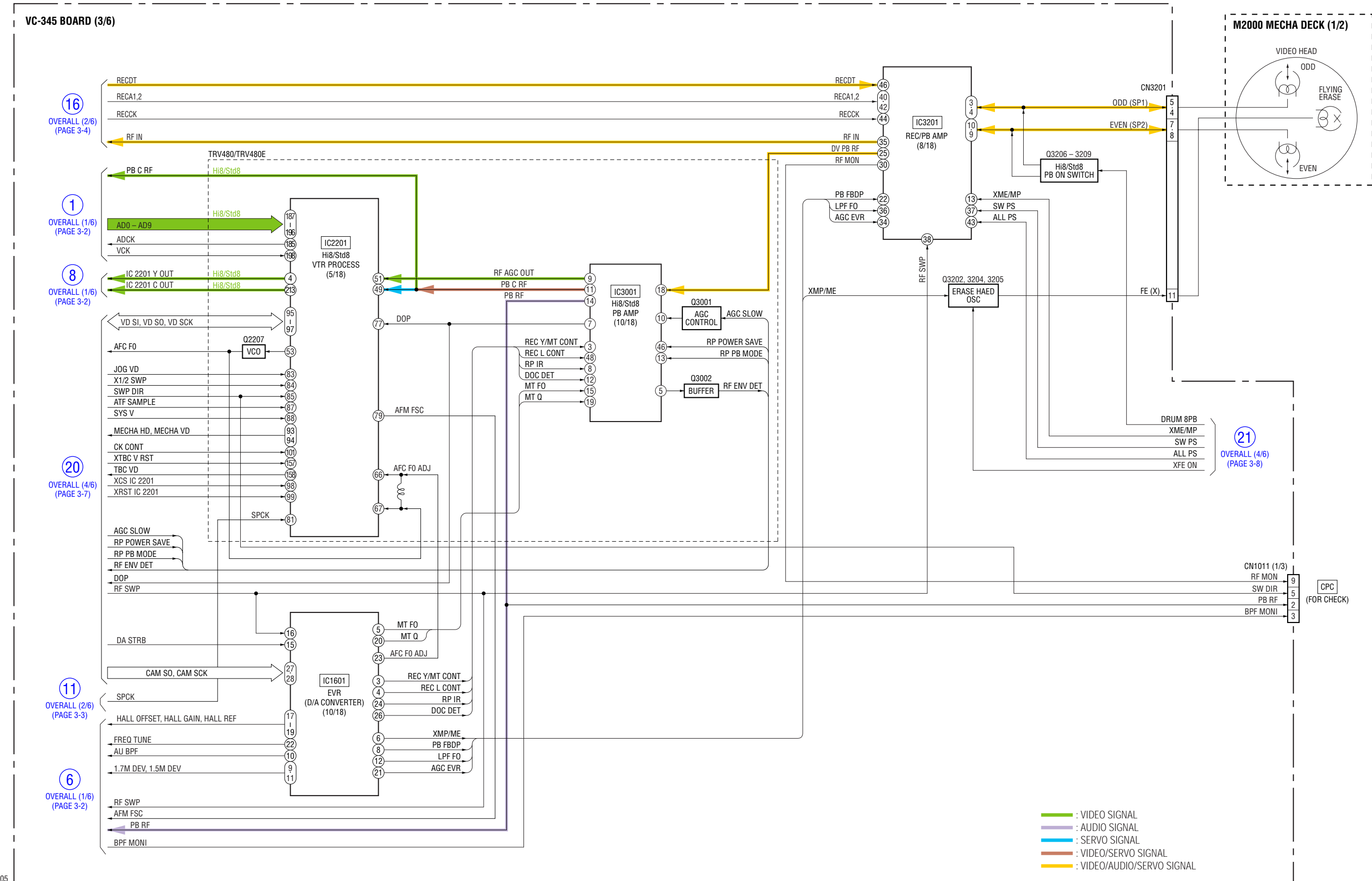
**3-1. OVERALL BLOCK DIAGRAM (1/6)** ( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



3-2. OVERALL BLOCK DIAGRAM (2/6) ( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.

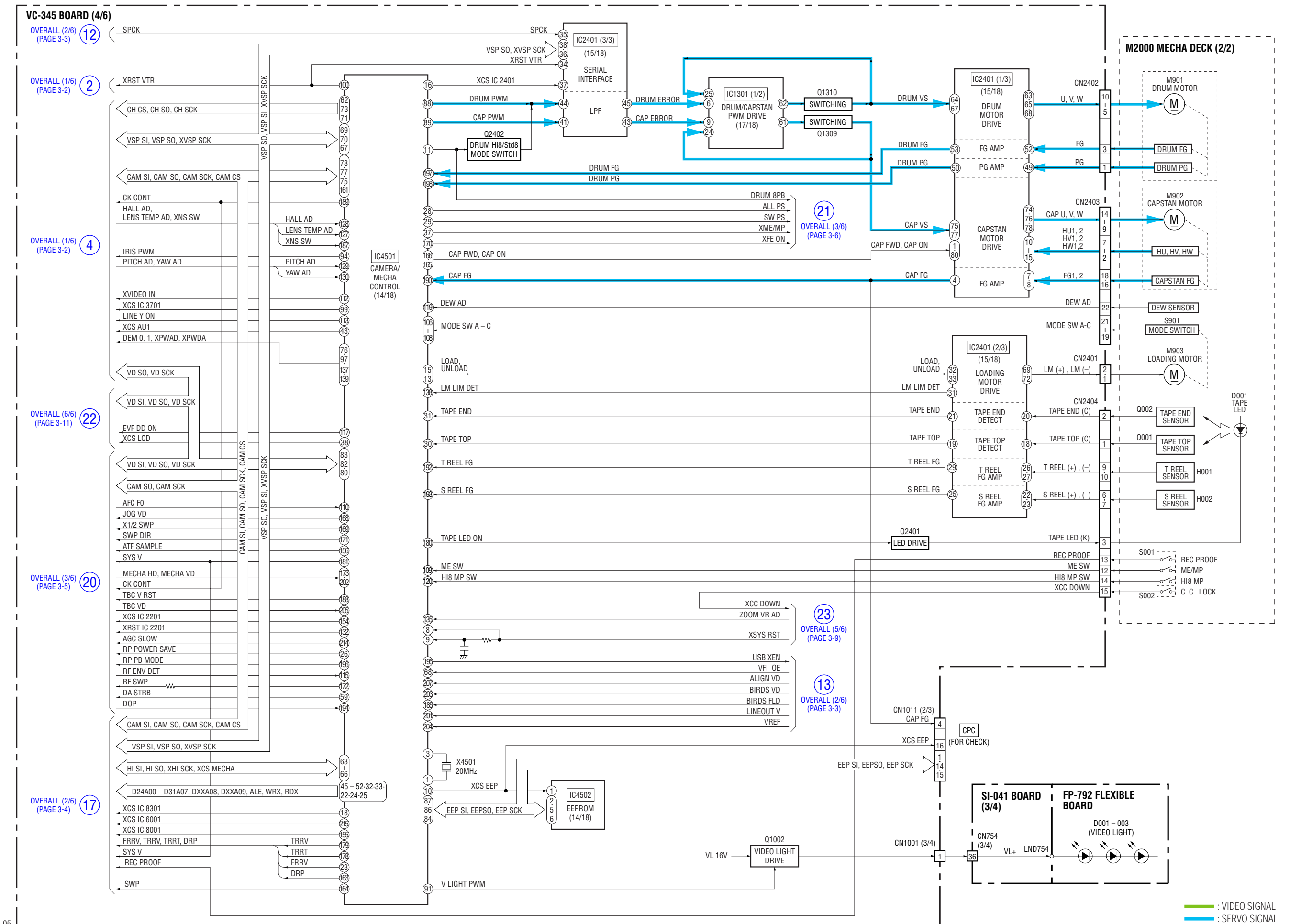


3-3. OVERALL BLOCK DIAGRAM (3/6) ( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.

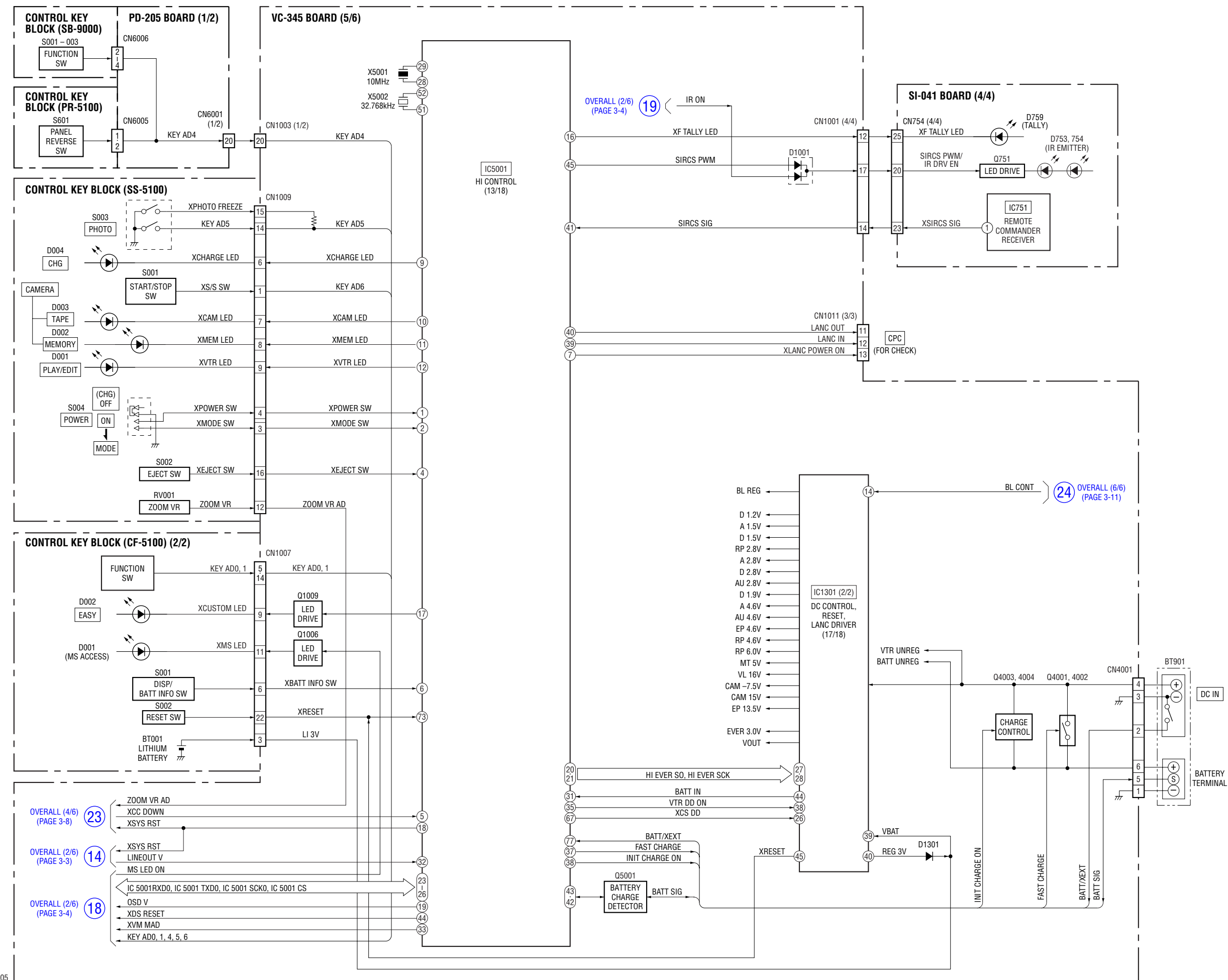




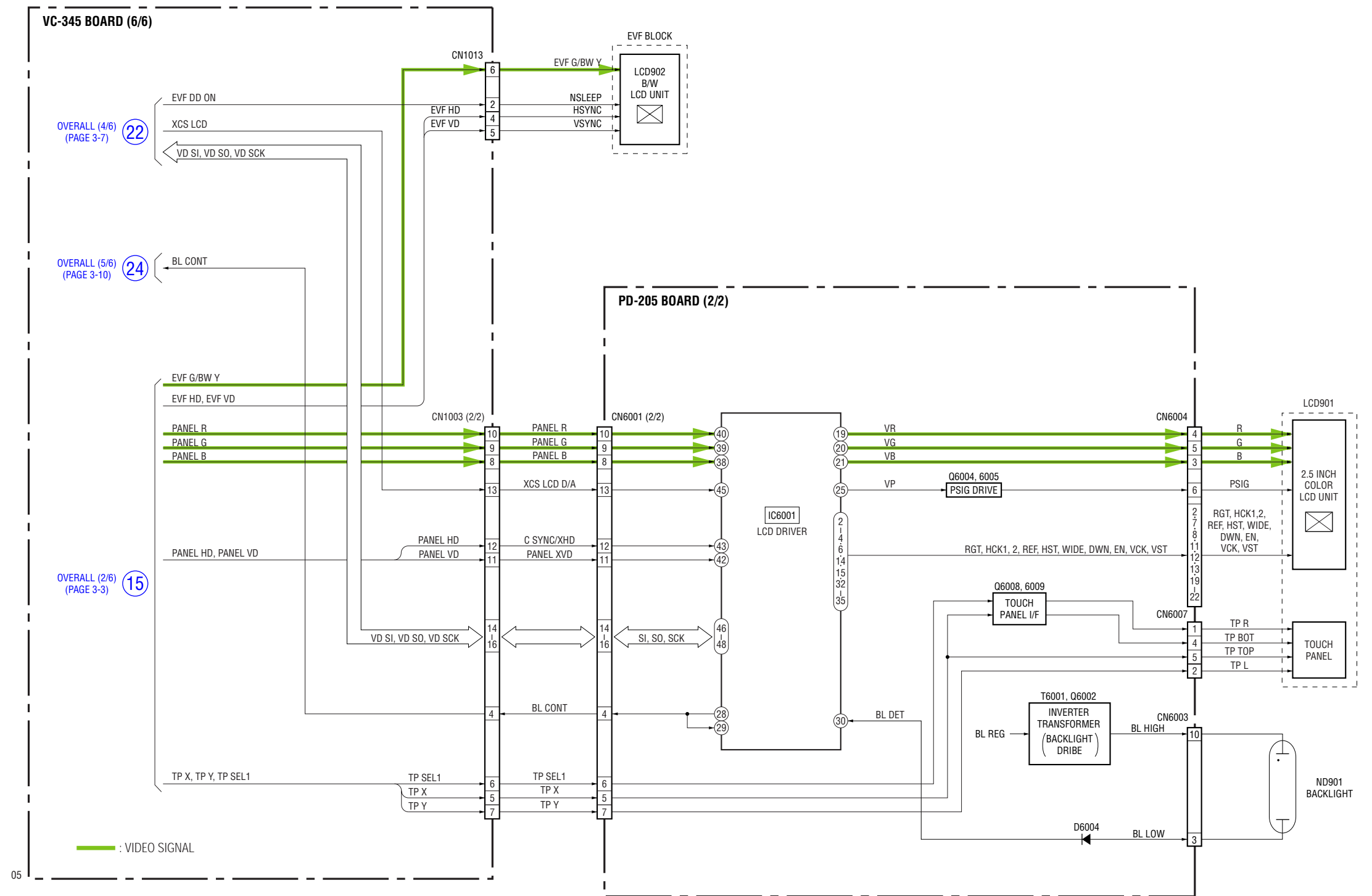
**3-4. OVERALL BLOCK DIAGRAM (4/6)** ( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



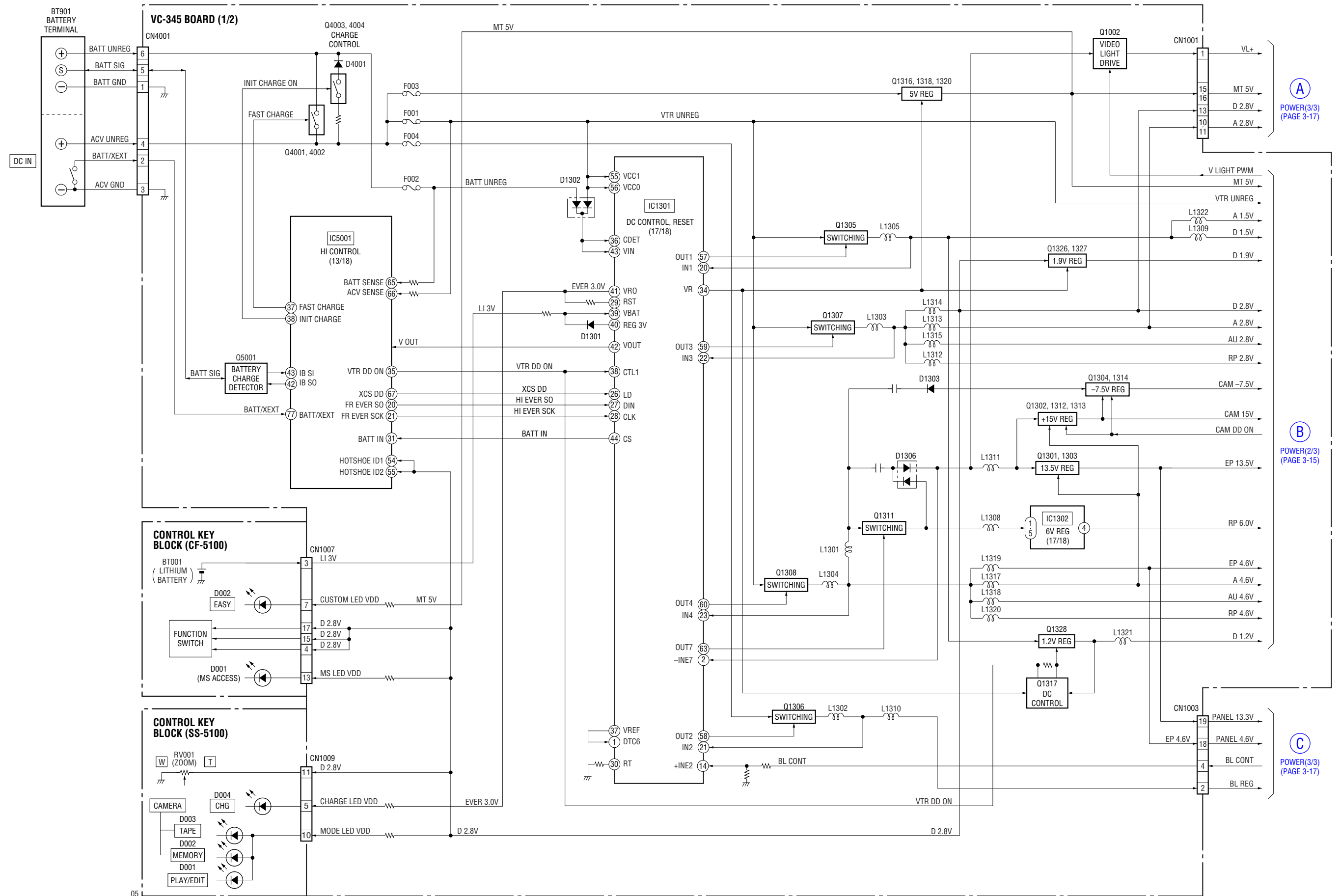
3-5. OVERALL BLOCK DIAGRAM (5/6) ( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



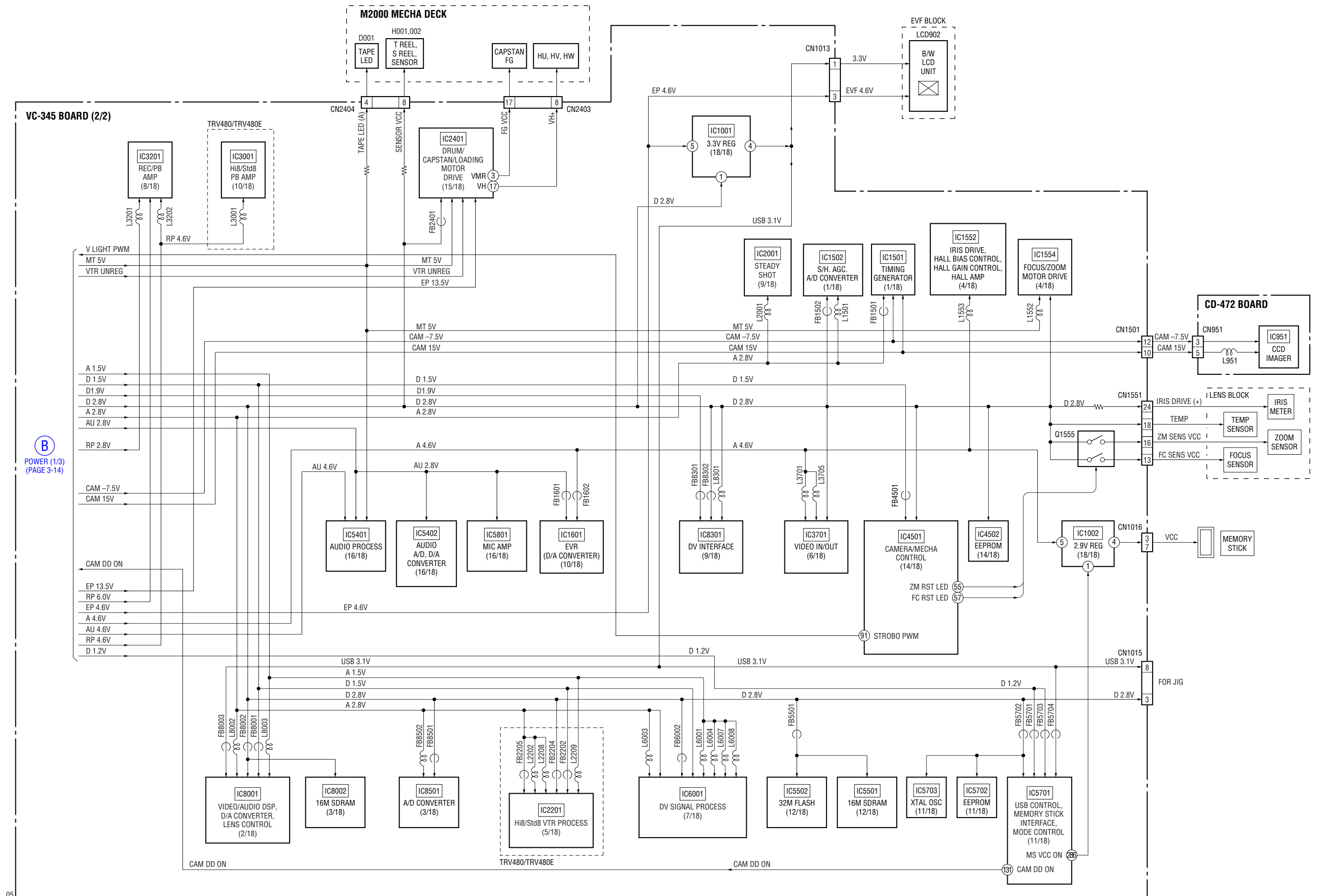
**3-6. OVERALL BLOCK DIAGRAM (6/6)** ( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



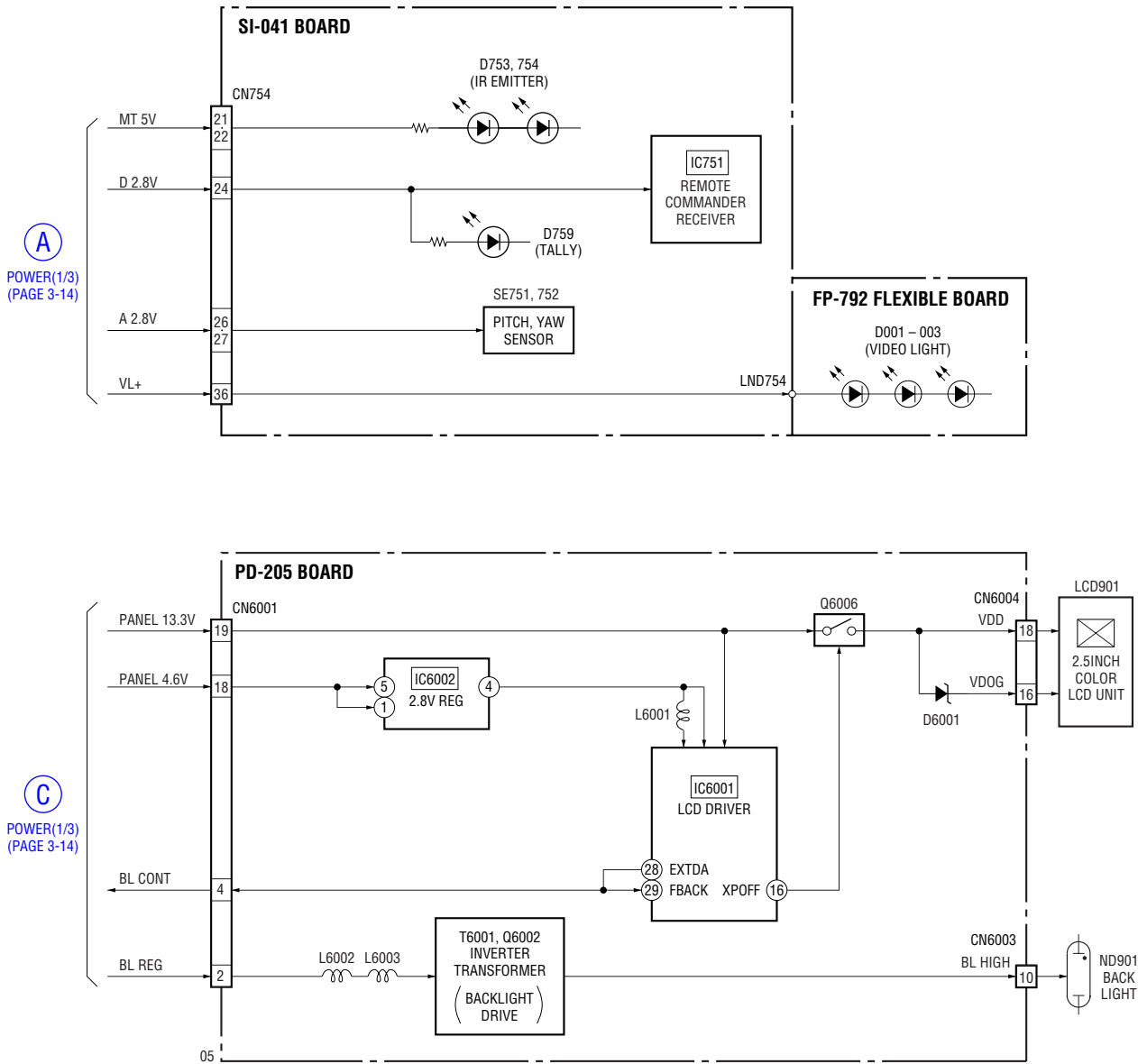
### 3-7. POWER BLOCK DIAGRAM (1/3) ( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



**3-8. POWER BLOCK DIAGRAM (2/3)** ( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.

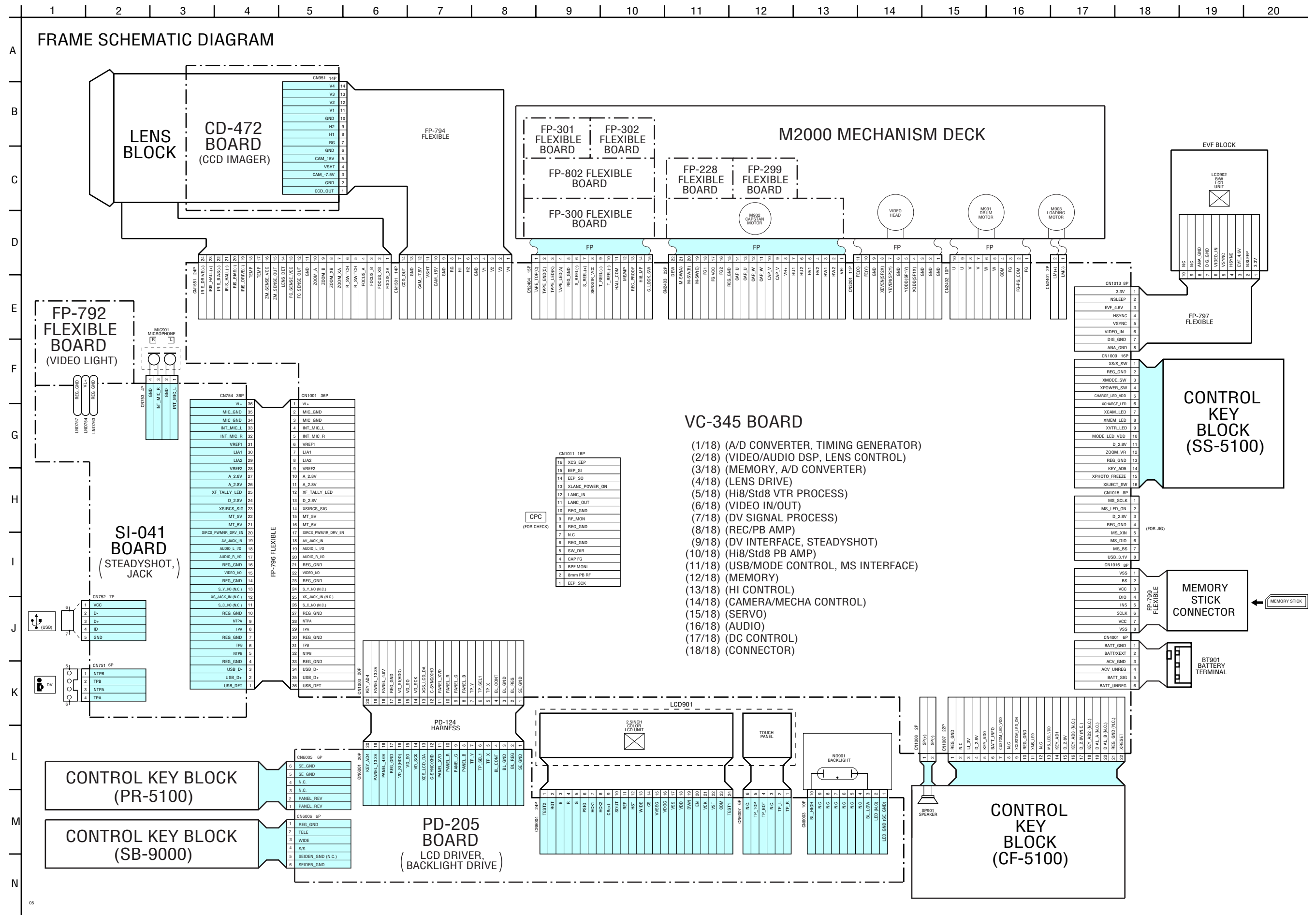


3-9. POWER BLOCK DIAGRAM (3/3) ( ) : Number in parenthesis ( ) indicates the division number of schematic diagram where the component is located.



#### 4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

#### 4-1. FRAME SCHEMATIC DIAGRAM





## 4-2. SCHEMATIC DIAGRAMS

### Link

<a href="#">• CD-472 BOARD (CCD IMAGER)</a>	<a href="#">• CONTROL KEY BLOCK (SS-5100)</a>
<a href="#">• PD-205 BOARD (LCD DRIVER, BACKLIGHT DRIVE)</a>	<a href="#">• CONTROL KEY BLOCK (PR-5100)</a>
<a href="#">• SI-041 BOARD (STEADYSHOT, JACK) FP-792 FLEXIBLE BOARD</a>	<a href="#">• CONTROL KEY BLOCK (SB-9000)</a>
<a href="#">• FP-228, FP-299, FP-300, FP-301, FP-302, FP-802 FLEXIBLE BOARD</a>	<a href="#">• CONTROL KEY BLOCK (CF-5100)</a>
<a href="#">• COMMON NOTE FOR SCHEMATIC DIAGRAMS</a>	<a href="#">• WAVEFORMS</a>

## 4-2. SCHEMATIC DIAGRAMS

### 4-2. SCHEMATIC DIAGRAMS

#### THIS NOTE IS COMMON FOR SCHEMATIC DIAGRAMS

(In addition to this, the necessary note is printed in each block)

##### (For schematic diagrams)

- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$  :  $\mu$   $\mu\text{F}$ . 50 V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are 1/10 W unless otherwise noted.  $\text{k}\Omega=1000 \Omega$ ,  $\text{M}\Omega=1000 \text{k}\Omega$ .
- Caution when replacing chip parts.  
New parts must be attached after removal of chip.  
Be careful not to heat the minus side of tantalum capacitor, Because it is damaged by the heat.
- Some chip part will be indicated as follows.

Example	C541	L452
	22U	10UH
	TA A	2520
	TA	A
Kinds of capacitor		External dimensions (mm)
	Case size	

- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used.  
In such cases, the unused circuits may be indicated.
- Parts with ★ differ according to the model/destination.  
Refer to the mount table for each function.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name  
XEDIT → EDIT PB/XREC → PB/REC
- : non flammable resistor
- : fusible resistor
- : panel designation
- : B+ Line
- : B- Line
- : IN/OUT direction of (+,-) B LINE.
- : adjustment for repair.
- : not use circuit
- Circled numbers refer to waveforms.

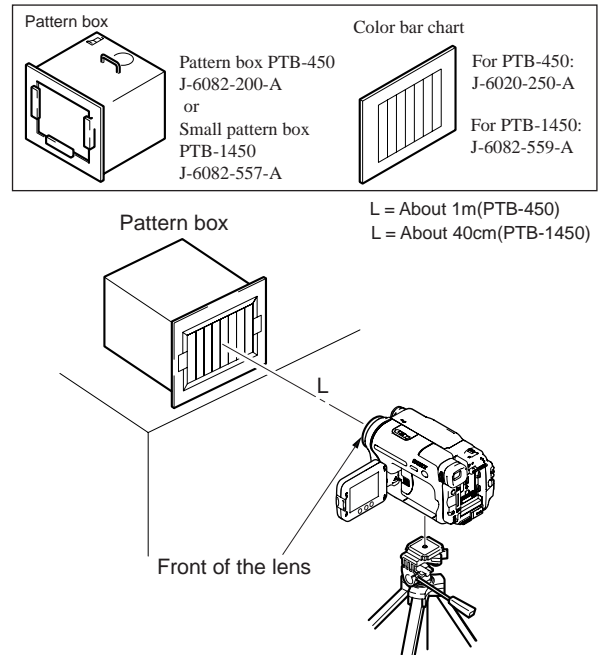
##### (Measuring conditions voltage and waveform)

- Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values and reference waveforms.  
(VOM of DC 10  $\text{M}\Omega$  input impedance is used)
- Voltage values change depending upon input impedance of VOM used.)

##### Precautions for Replacement of CCD Imager

- The CD-472 board mounted as a repair part is not equipped with a CCD imager.  
When replacing this board, remove the CCD imager from the old one and mount it onto the new one.
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC.  
In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.

#### 1. Connection



#### 2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

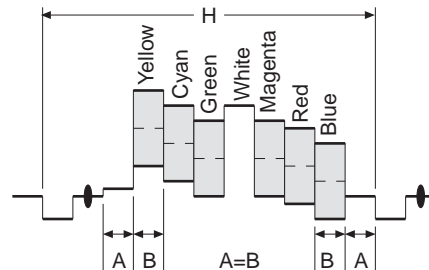


Fig. a (Video output terminal output waveform)

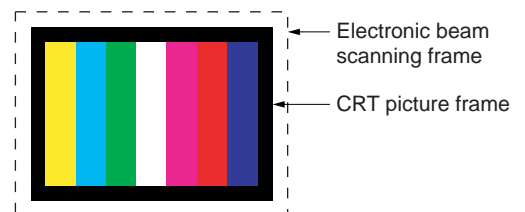


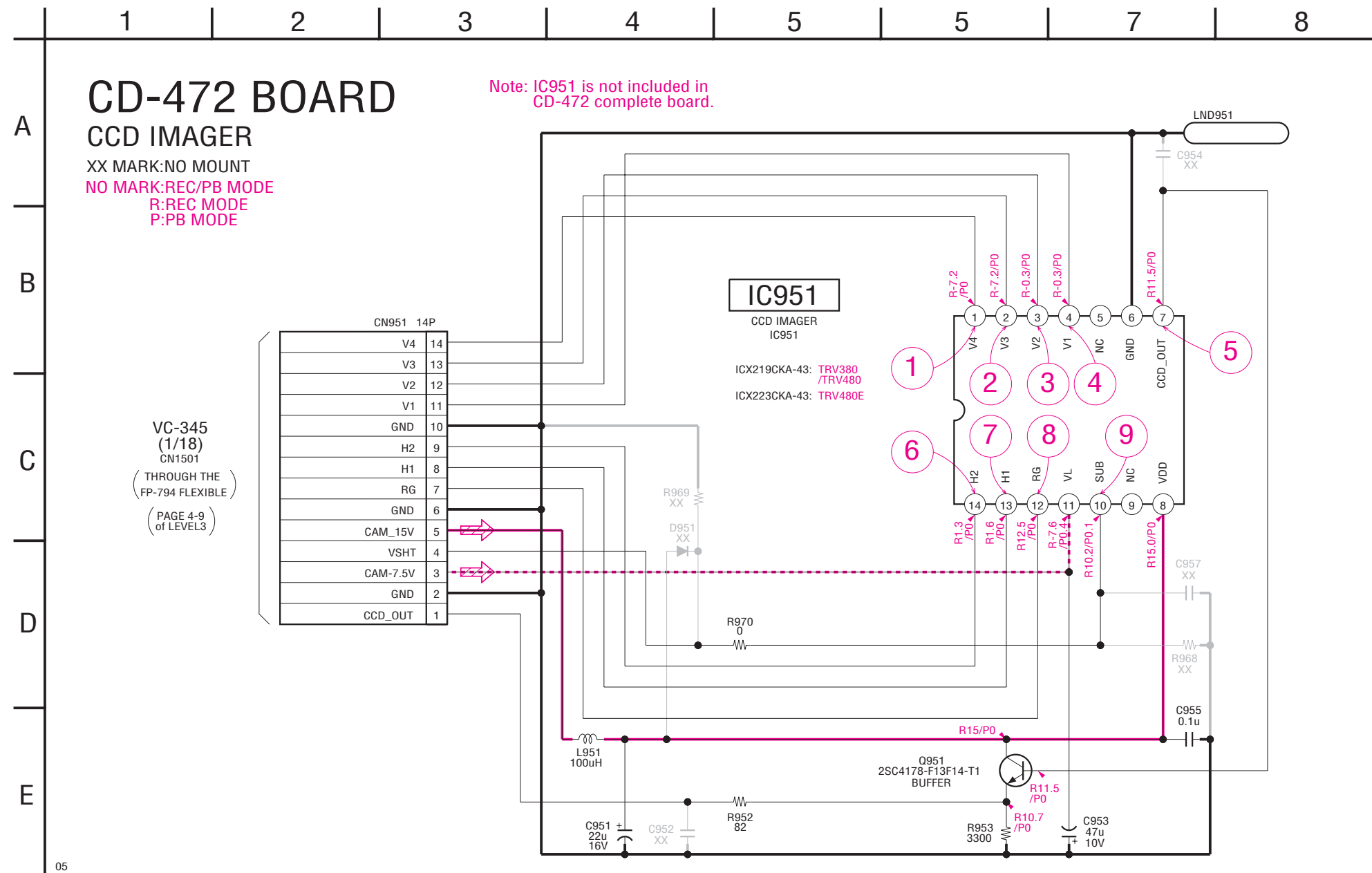
Fig.b (Picture on monitor TV)

When indicating parts by reference number, please include the board name.

The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety.  
Replace only with part number specified.

Les composants identifiés par une marque  $\triangle$  sont critiques pour la sécurité.  
Ne les remplacer que par une pièce portant le numéro spécifié.

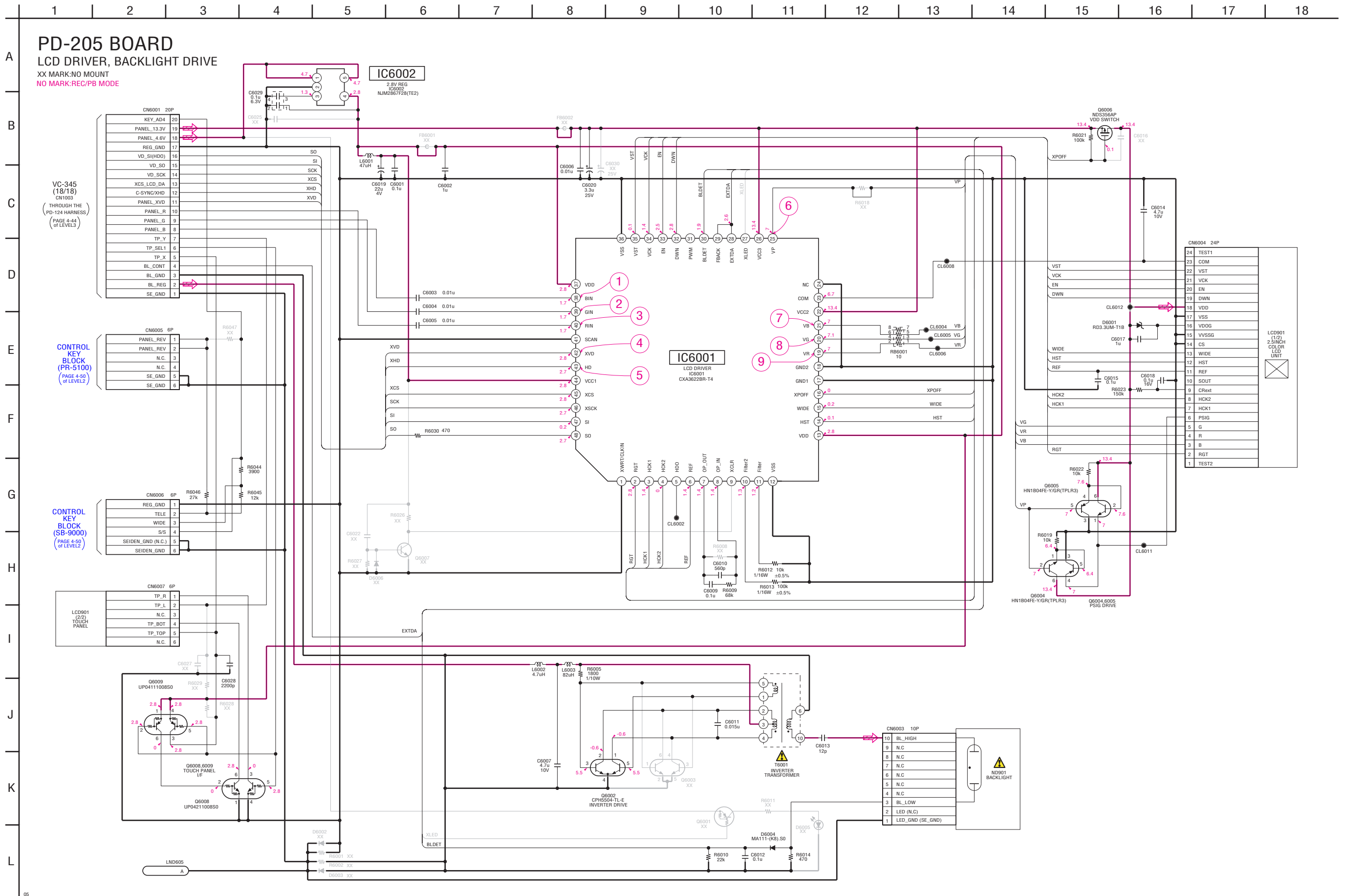
- Refer to page 4-57 for printed wiring board.





Schematic diagrams of the VC-345 board are not shown.  
Pages from 4-9 to 4-44 are not shown.

**For Schematic Diagram**

- Refer to page 4-63 for printed wiring board.



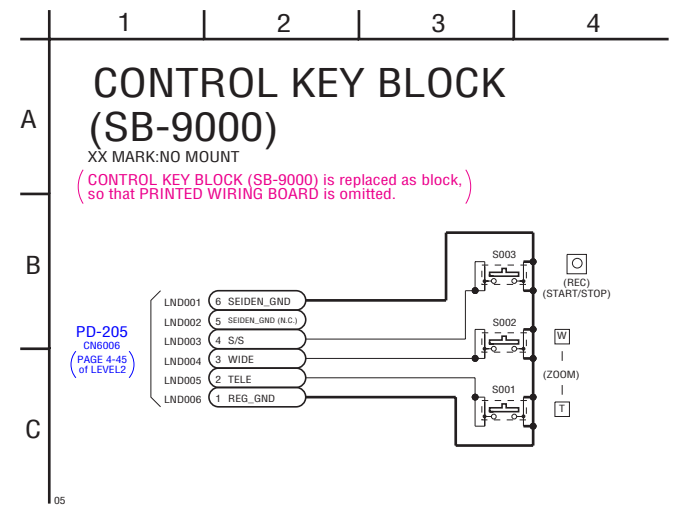
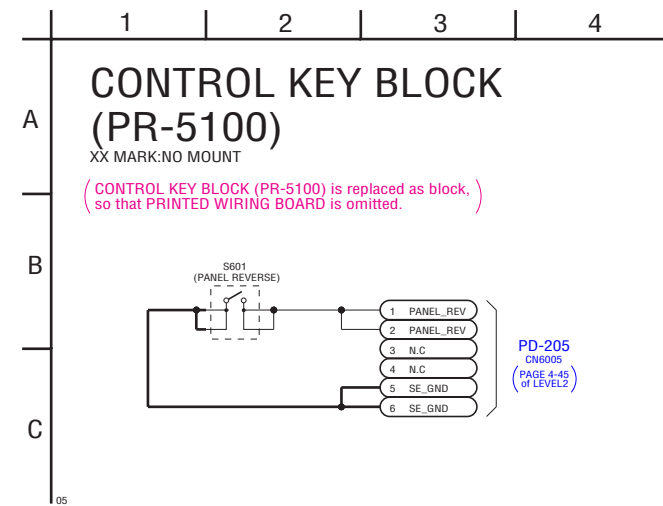
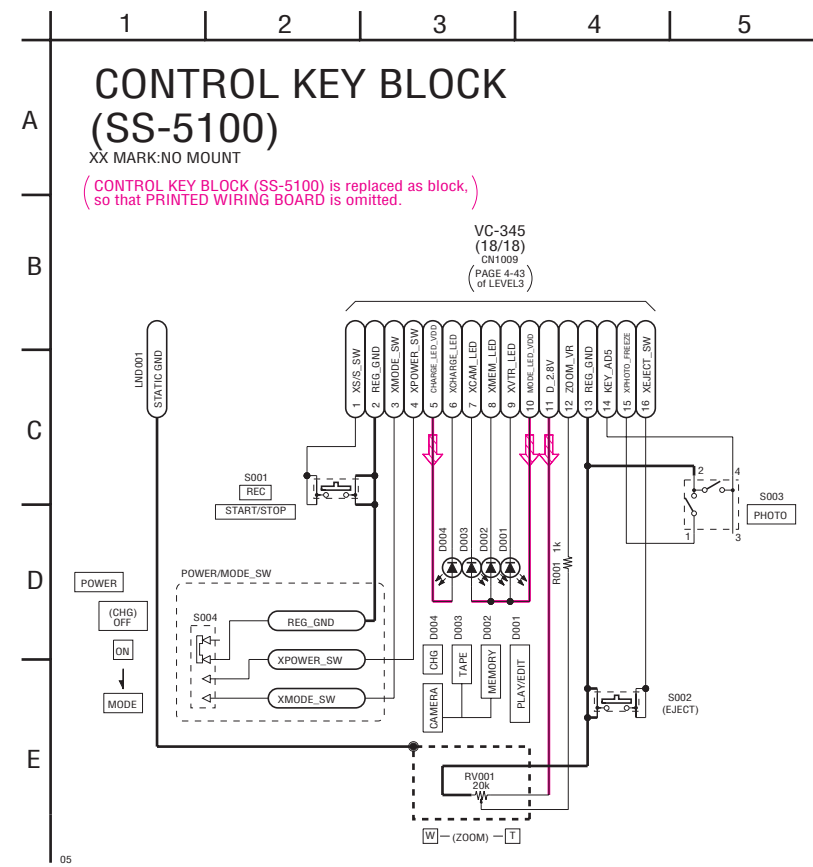
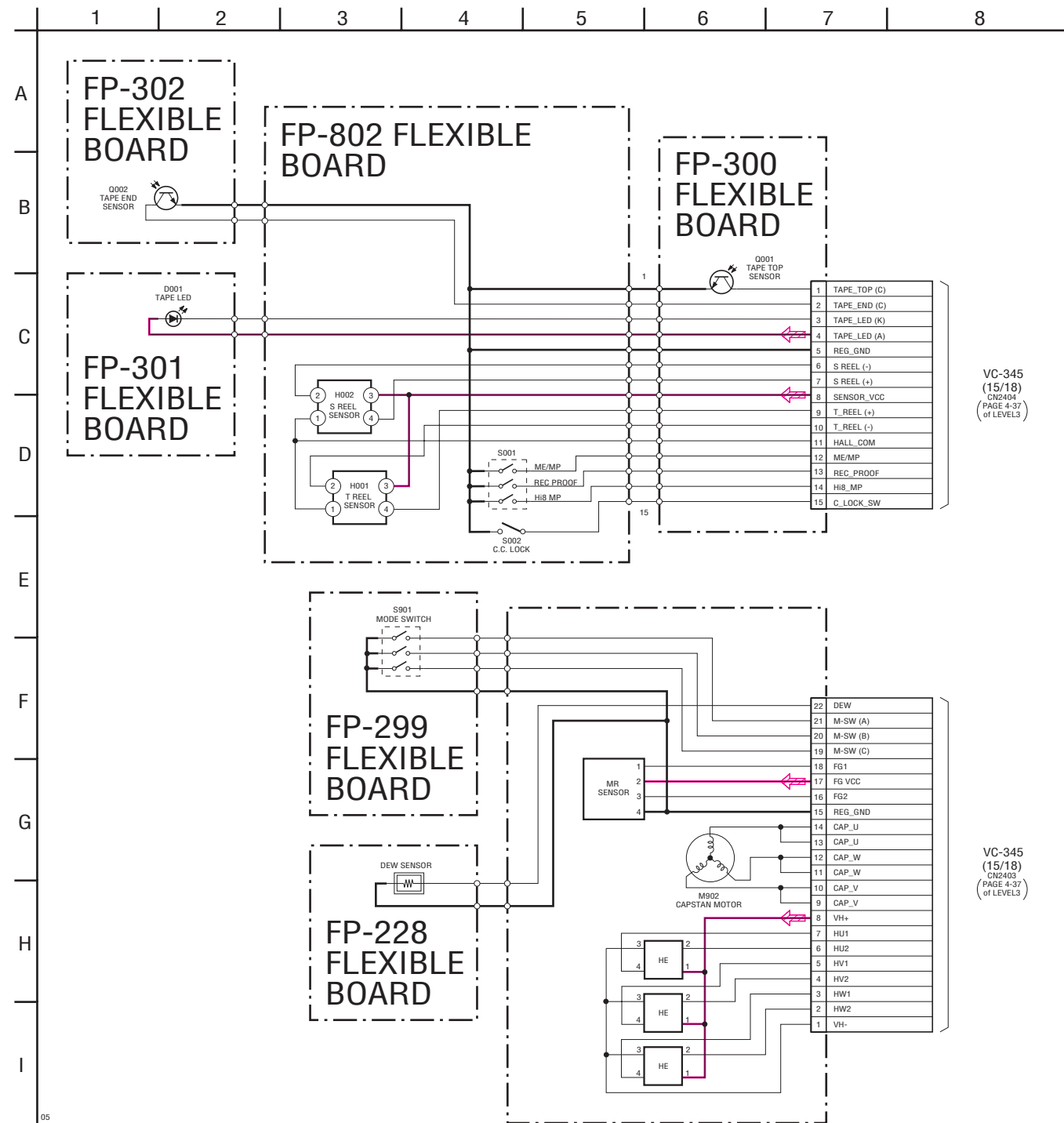
The components identified by mark  or dotted line with mark  are critical for safety.  
Replace only with part number specified.

Les composants identifiés par une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- Refer to page 4-65 for printed wiring board.



- Refer to page 4-67 for printed wiring board.





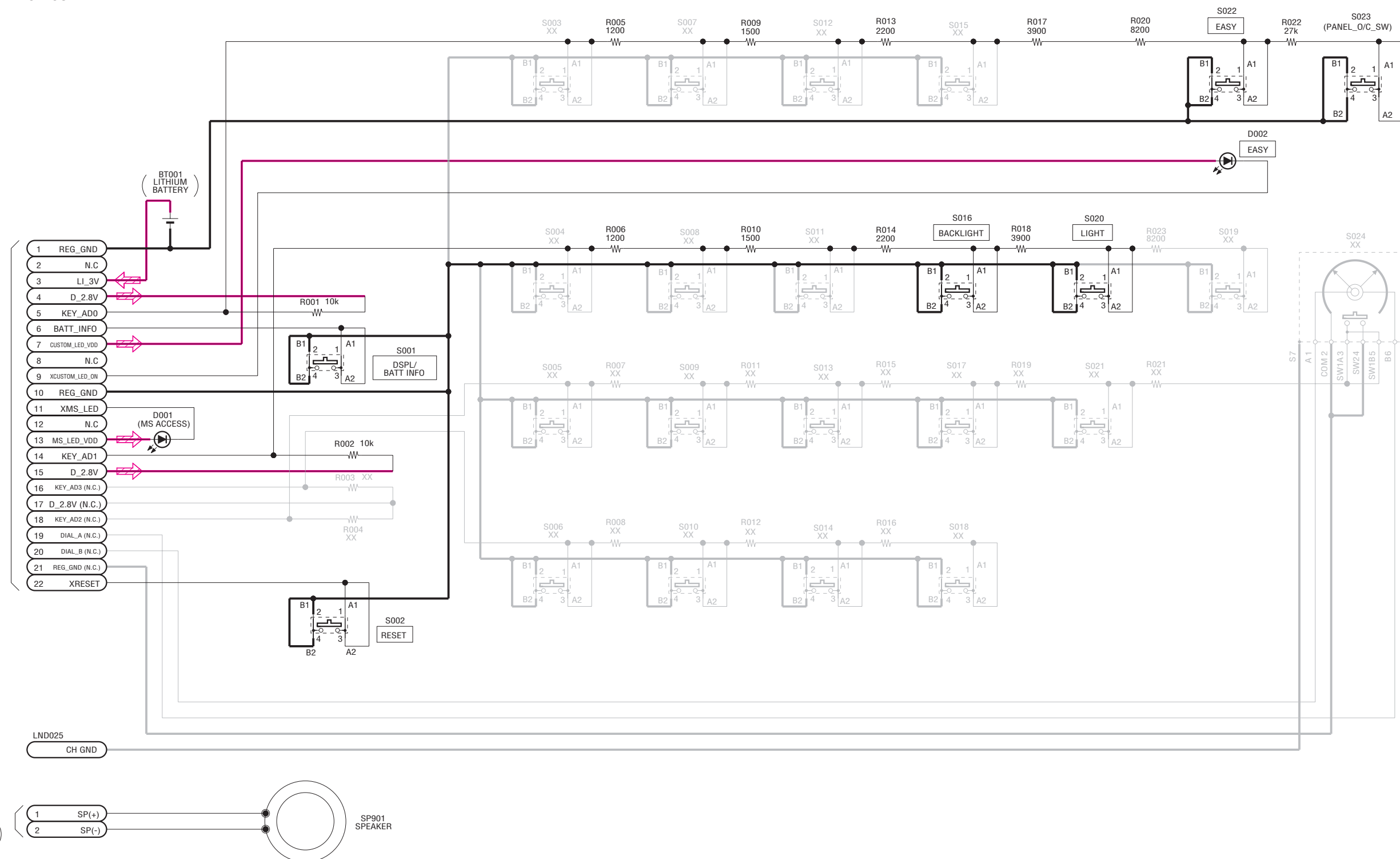
# CONTROL KEY BLOCK (CF-5100)

XX MARK:NO MOUNT

(CONTROL KEY BLOCK (CF-5100) is replaced as block,  
so that PRINTED WIRING BOARD is omitted.)

VC-345  
(18/18)  
CN1007  
(PAGE 4-44  
of LEVEL3)

VC-345  
(16/18)  
CN1008  
(PAGE 4-39  
of LEVEL3)



## 4-3. PRINTED WIRING BOARDS

### Link

• CD-472 BOARD	• FP-792 FLEXIBLE BOARD
• PD-205 BOARD	• FP-228, FP-299, FP-300, FP-301, FP-302, FP-802 FLEXIBLE BOARD
• SI-041 BOARD	






• COMMON NOTE FOR PRINTED WIRING BOARDS		• WAVEFORMS
• MOUNTED PARTS LOCATION	• CIRCUIT BOARDS LOCATION	• FLEXIBLE BOARDS LOCATION

Board Name	Function
CD-472	CCD IMAGER
PD-205	LCD DRIVE, BACKLIGHT DRIVE
SI-041	STEADYSHOT, JACK

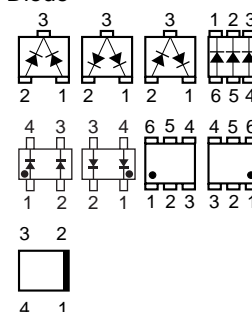
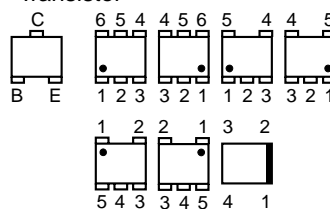
### 4-3. PRINTED WIRING BOARDS

### 4-3. PRINTED WIRING BOARDS

**THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS**

-  : Uses unleaded solder.
  -  : Circuit board
  -  : Flexible board
- Pattern from the side which enables seeing.
-  : pattern of the rear side  
(The other layers' patterns are not indicated)
- Through hole is omitted.
  - Circled numbers refer to waveforms.
  - There are a few cases that the part printed on diagram isn't mounted in this model.
  -  : panel designation

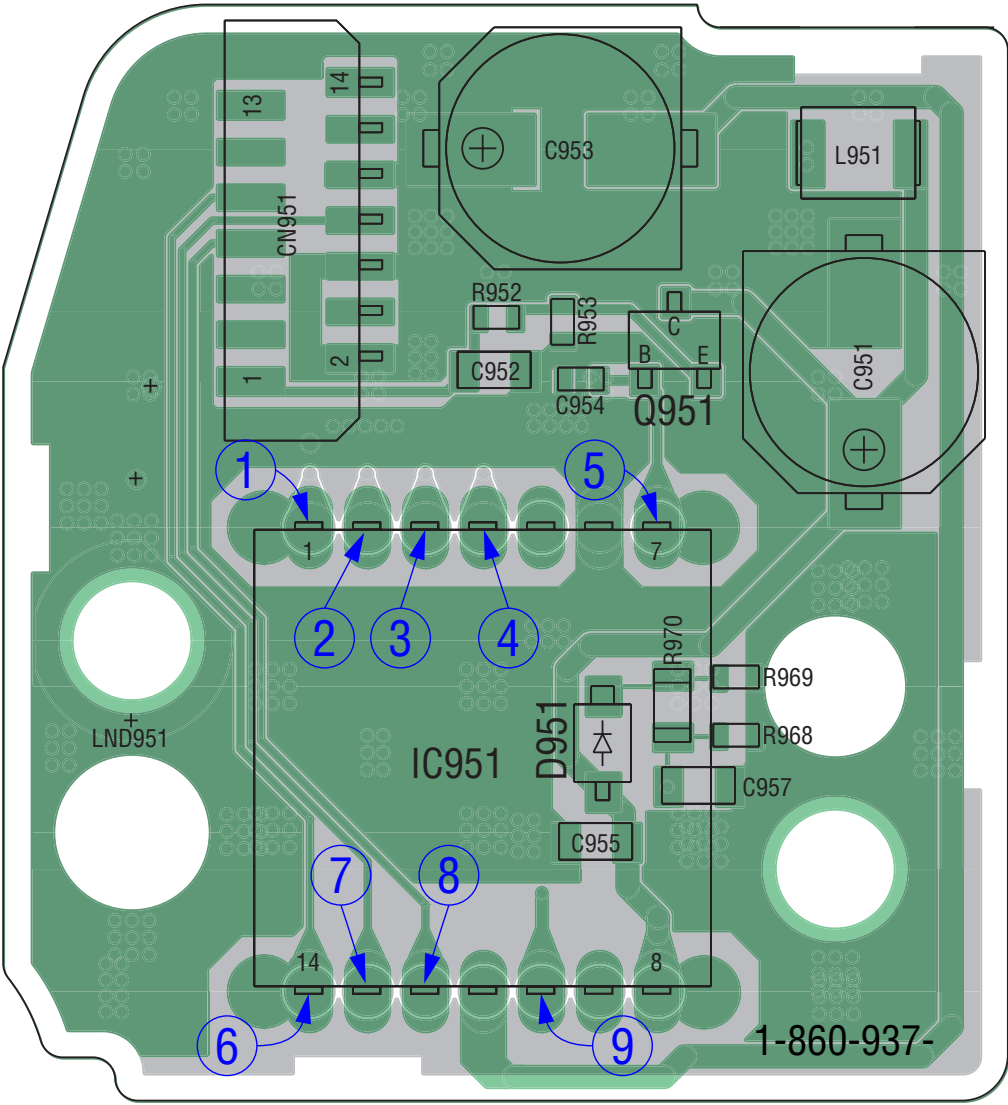
- Chip parts.  
Transistor



## BOARD INFORMATION

Board Name	Parts Location (Shown on Page)	Pattern	
		Total Number of Layers	Layers Not Indicated
CD-472	–	8 layers	2 to 7 layers
PD-205	4-79	2 layers	–
SI-041	4-79	2 layers	–
FP-792 Flexible	–	1 layer	–
FP-228 Flexible	–	1 layer	–
FP-299 Flexible	–	1 layer	–
FP-300 Flexible	–	1 layer	–
FP-301 Flexible	–	1 layer	–
FP-302 Flexible	–	1 layer	–
FP-802 Flexible	–	1 layer	–

CD-472 BOARD

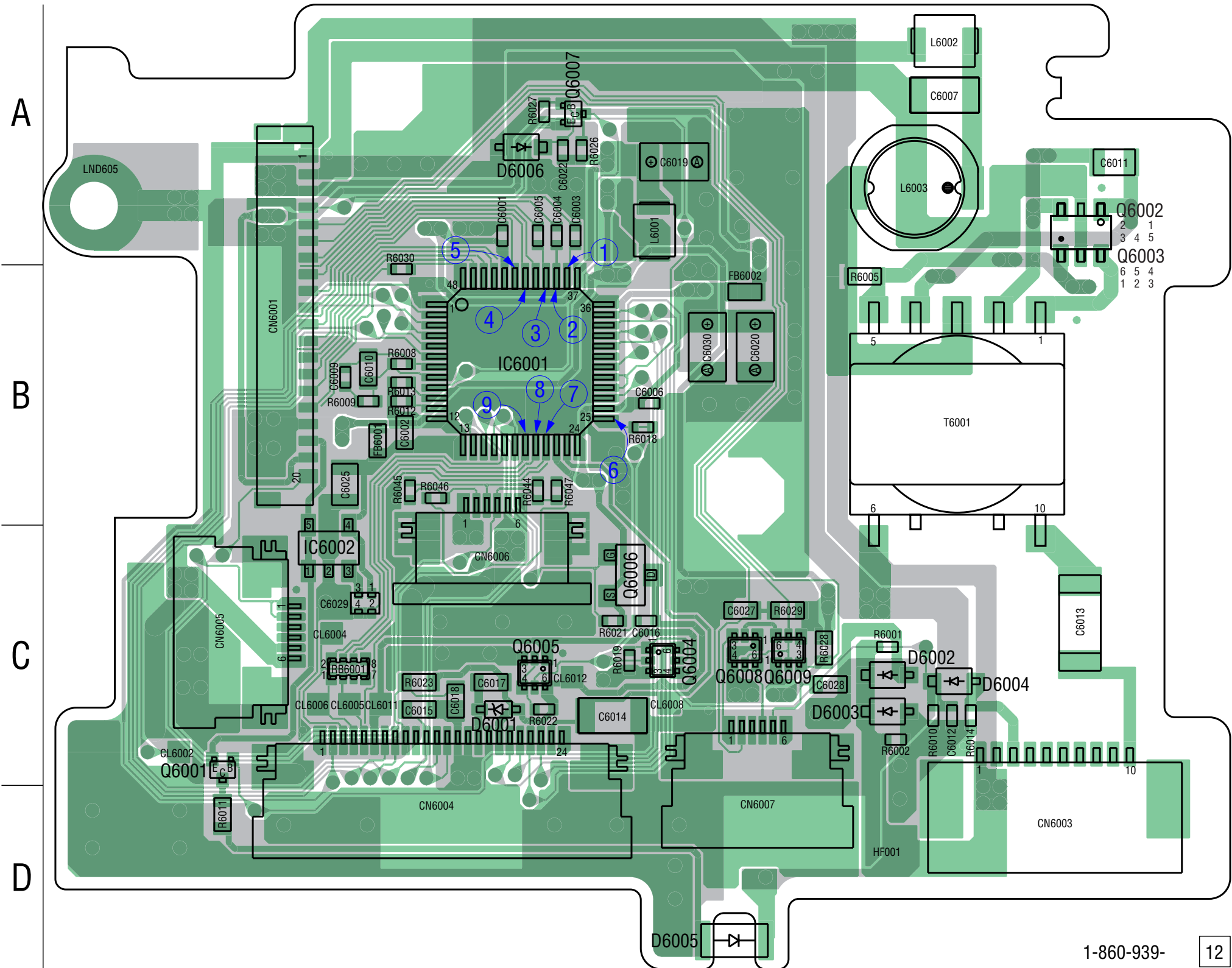


Note: IC951 is not included in CD-472 complete board.

Printed wiring boards of the VC-345 board are not shown.  
Pages from 4-59 to 4-62 are not shown.

 : Uses unleaded solder.

PD-205 BOARD

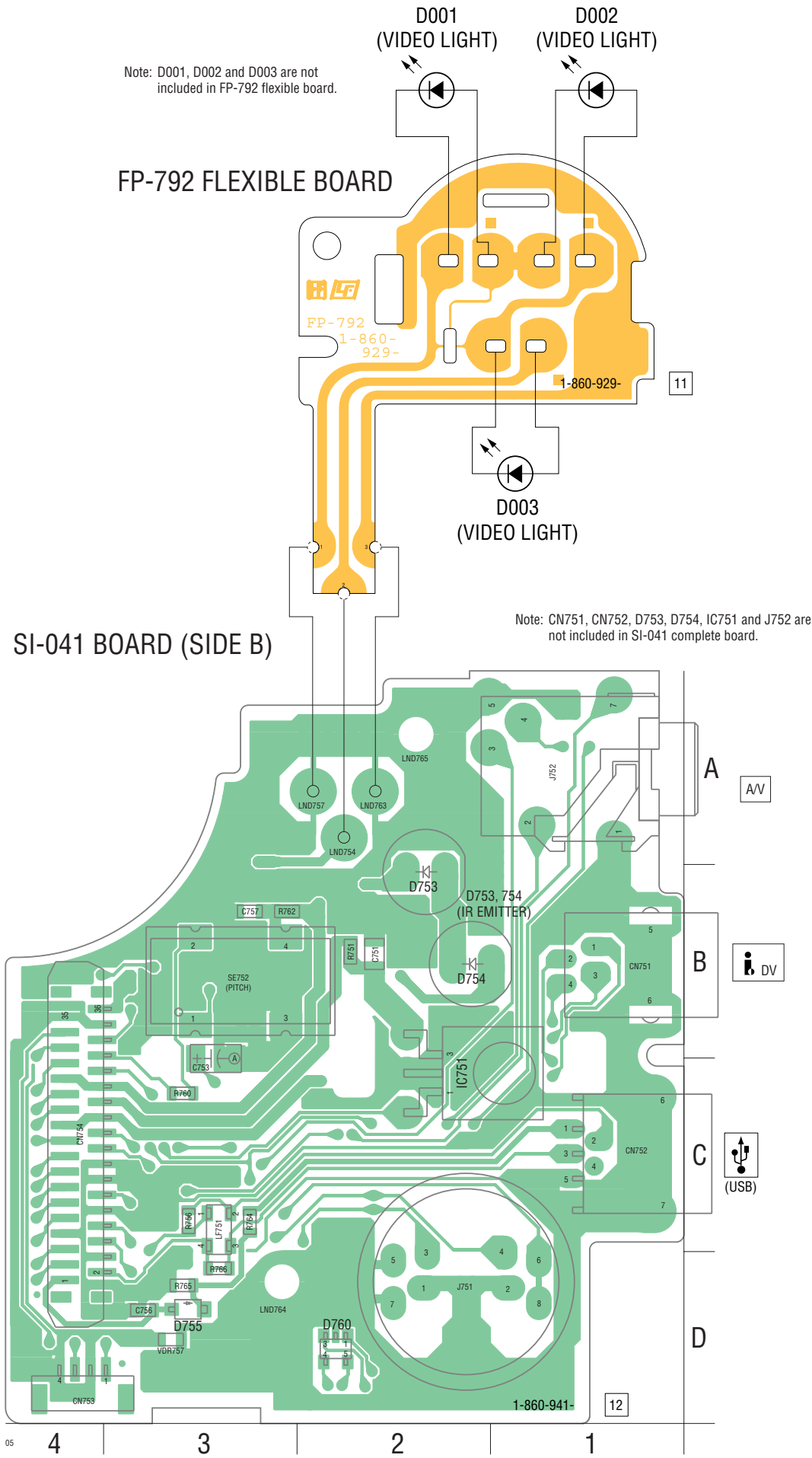
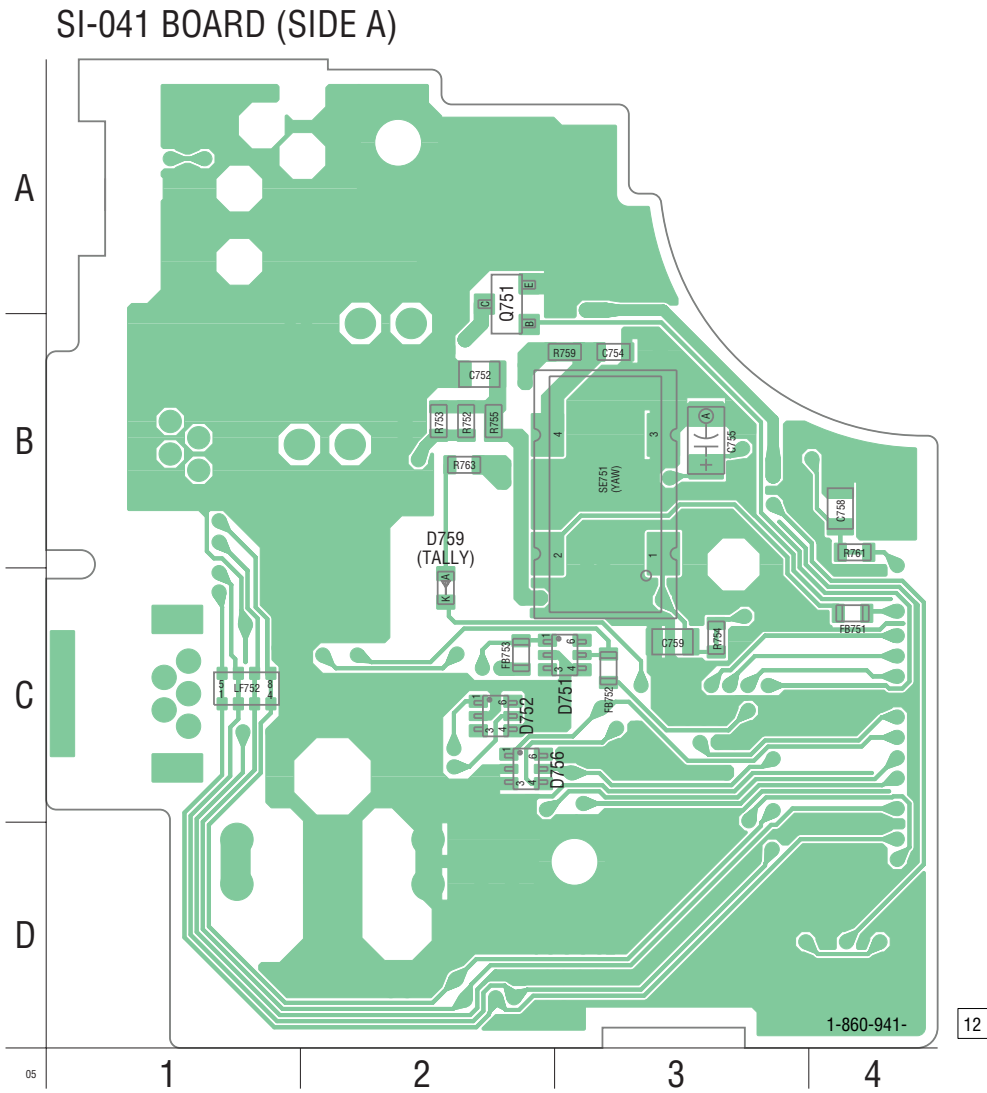


Note: Q6002 and Q6003 have the same mount location. When you replace, since either Q6002 or Q6003 is used, please refer to schematic diagram and electrical parts list.

SI-041, FP-792 FLEXIBLE

Note for Printed Wiring Board (See page 4-55).

 : Uses unleaded solder.

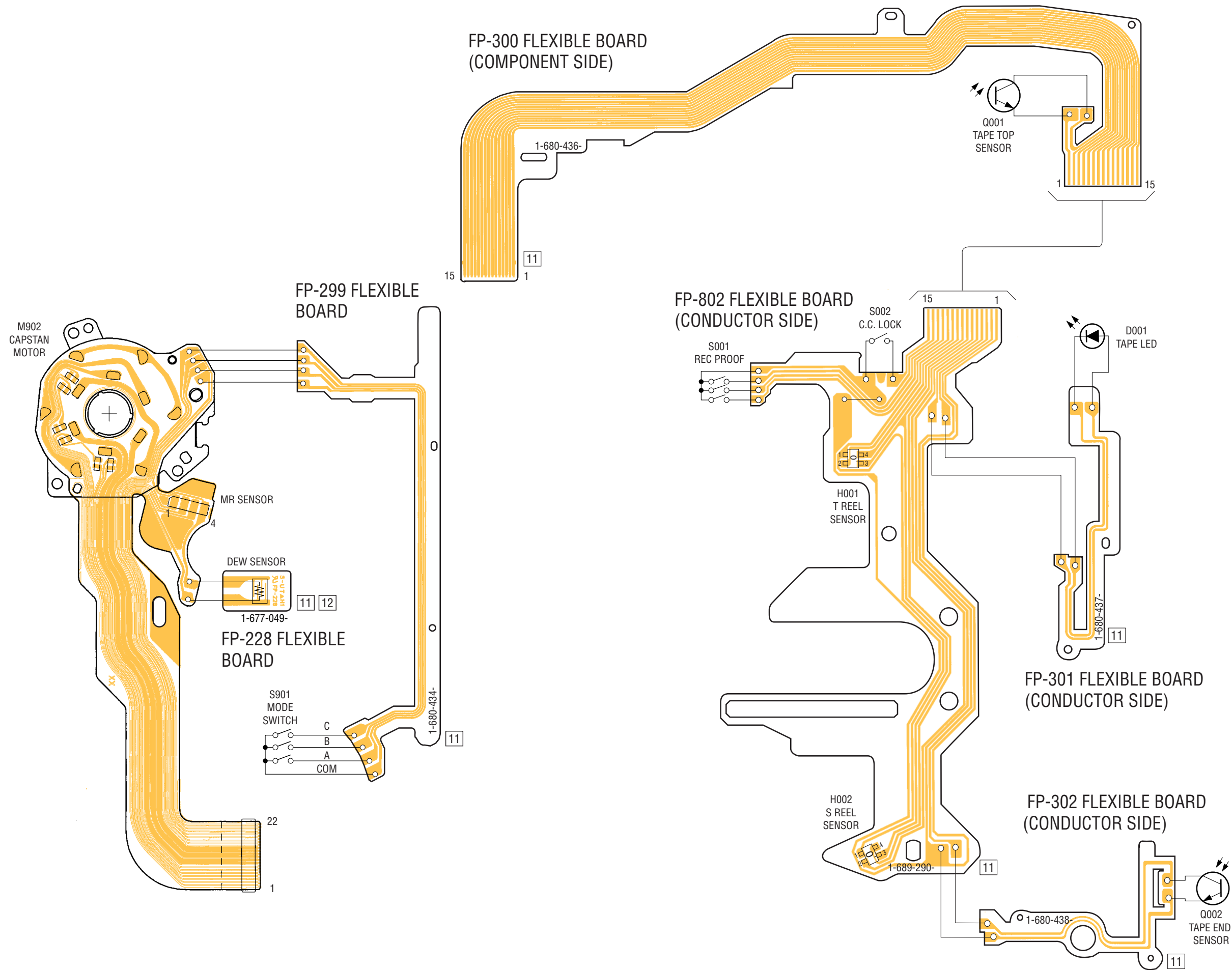




FP-228, FP-299, FP-300, FP-301, FP-302, FP-802 FLEXIBLE

Note for Printed Wiring Board (See page 4-55).

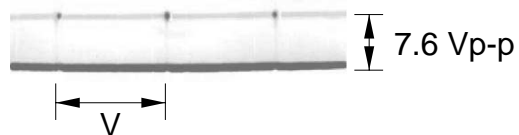
 : Uses unleaded solder.



## 4-4. WAVEFORMS

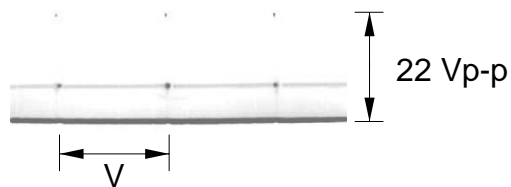
## CD-472 BOARD

①



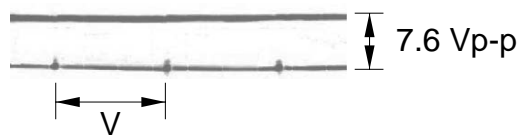
IC951 ① REC

②



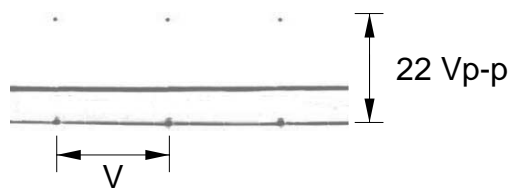
IC951 ② REC

③



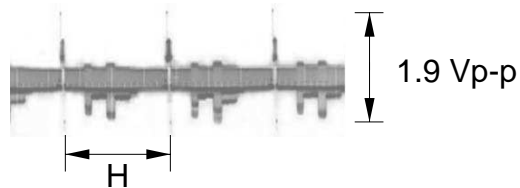
IC951 ③ REC

④



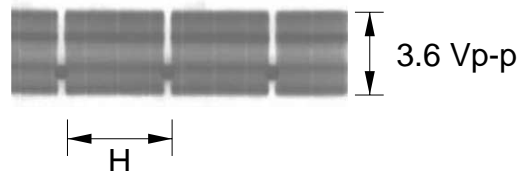
IC951 ④ REC

⑤



IC951 ⑦ REC

⑥



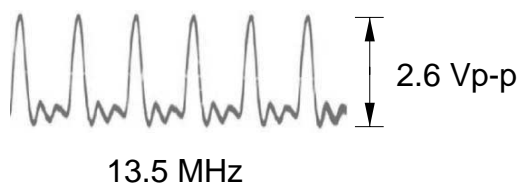
IC951 ⑭ REC

⑦



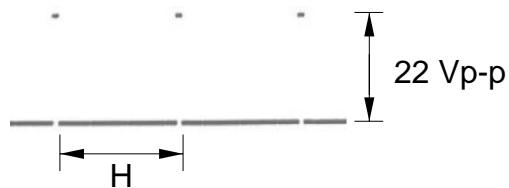
IC951 ⑬ REC

⑧



IC951 ⑫ REC

⑨

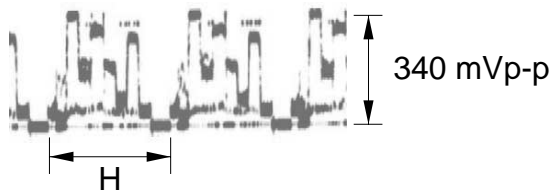


IC951 ⑩ REC

Waveforms of the VC-345 board are not shown.  
Pages 4-70 to 4-75 are not shown.

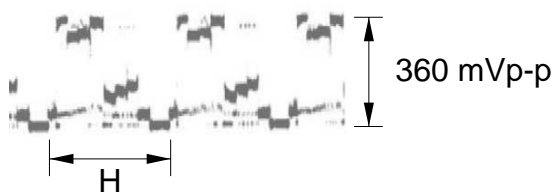
PD-205 BOARD

①



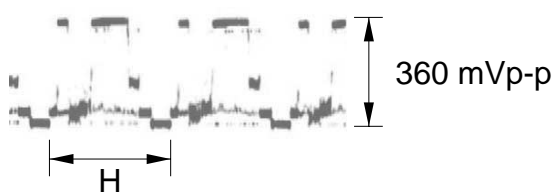
IC6001 ③⑧ REC/PB

②



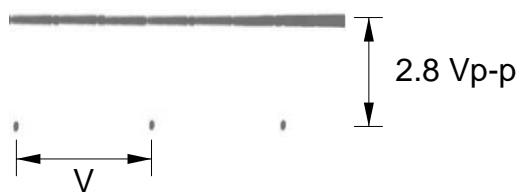
IC6001 ③⑨ REC/PB

③



IC6001 ④⑩ REC/PB

④



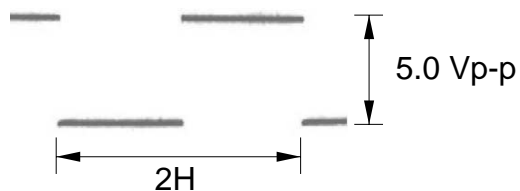
IC6001 ④② REC/PB

⑤



IC6001 ④③ REC/PB

⑥



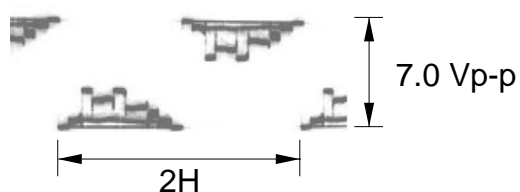
IC6001 ②⑤ REC/PB

⑦



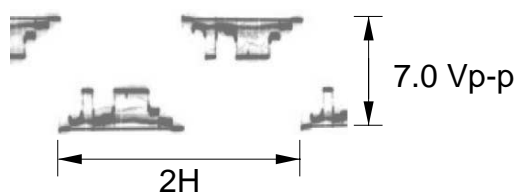
IC6001 ②① REC/PB

⑧



IC6001 ②⑩ REC/PB

⑨



IC6001 ①⑨ REC/PB

Mounted parts location of the VC-345 board is not shown.  
Pages 4-77 and 4-78 are not shown.

## 4-3. PRINTED WIRING BOARDS

### 4-5. MOUNTED PARTS LOCATION

no mark : side A

\* mark : side B

#### PD-205 BOARD

#### SI-041 BOARD

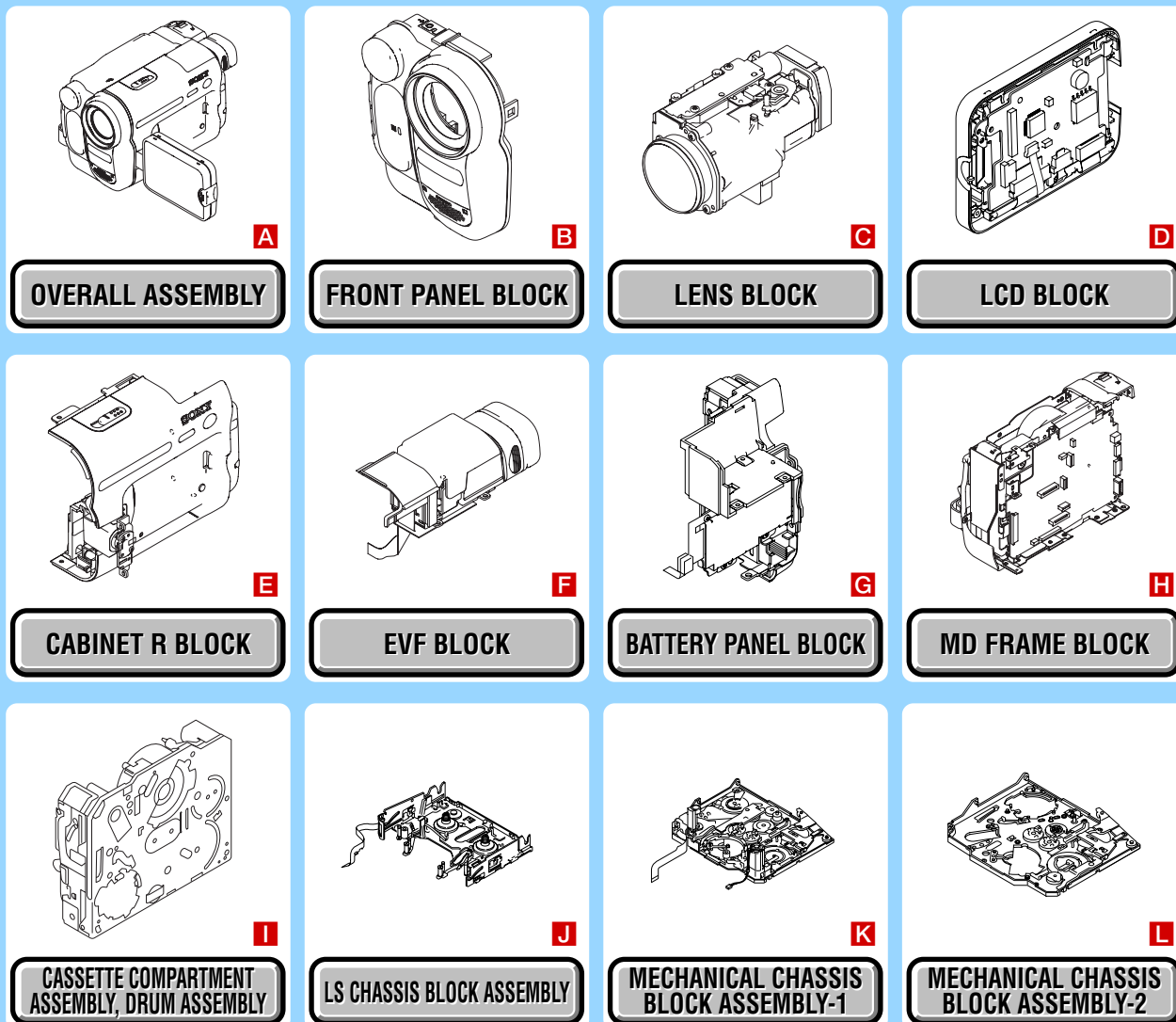
C6001	A-2	C758	B-4
C6002	B-2	C759	C-3
C6003	A-3		
C6004	A-2	* CN751	B-1
C6005	A-2	* CN752	C-1
C6006	B-3	* CN753	D-4
C6007	A-4	* CN754	C-4
C6009	B-2		
C6010	B-2	D751	C-3
C6011	A-5	* D753	B-2
C6012	C-4	* D754	B-2
C6013	C-4	* D755	D-3
C6014	C-3	D756	C-3
C6015	C-2	D759	C-2
C6017	C-2		
C6018	C-2	FB751	C-4
C6019	A-3	FB752	C-3
C6020	B-3	FB753	C-2
C6028	C-4		
C6029	C-2	* IC751	C-2
CN6001	B-1	* J752	A-1
CN6003	D-4		
CN6004	D-2	Q751	A-2
CN6005	C-1		
CN6006	C-2	R752	B-2
CN6007	D-3	R753	B-2
		R763	B-2
D6001	C-2	* R764	C-3
D6004	C-4	* R765	D-3
IC6001	B-2	SE751	B-3
IC6002	C-2	* SE752	B-3
L6001	A-3		
L6002	A-4		
L6003	A-4		
Q6002	A-5		
Q6004	C-2		
Q6005	C-2		
Q6006	C-3		
Q6008	C-3		
Q6009	C-3		
R6005	B-4		
R6009	B-2		
R6010	C-4		
R6012	B-2		
R6013	B-2		
R6014	C-4		
R6019	C-3		
R6021	C-3		
R6022	C-2		
R6023	C-2		
R6030	B-2		
R6044	B-2		
R6045	B-2		
R6046	B-2		
RB6001	C-2		
T6001	B-4		

## 5. REPAIR PARTS LIST

NOTE: Characters **A** to **L** of the electrical parts list indicate location of exploded views in which the desired part is shown.

Link

### EXPLODED VIEWS



Link

### ELECTRICAL PARTS LIST

ACCESSORIES

• CD-472 BOARD <b>C</b>	• FP-301 FLEXIBLE BOARD <b>J</b>	• PD-205 BOARD <b>D</b>
• FP-228 FLEXIBLE BOARD <b>K</b>	• FP-302 FLEXIBLE BOARD <b>J</b>	• SI-041 BOARD <b>B</b>
• FP-299 FLEXIBLE BOARD <b>K</b>	• FP-792 FLEXIBLE BOARD <b>B</b>	
• FP-300 FLEXIBLE BOARD <b>J</b>	• FP-802 FLEXIBLE BOARD <b>J</b>	



5. REPAIR PARTS LIST

5. REPAIR PARTS LIST

NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked “\*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- CAPACITORS:  
uF:  $\mu$ F
- COILS  
uH:  $\mu$ H
- RESISTORS  
All resistors are in ohms.  
METAL: metal-film resistor  
METAL OXIDE: Metal Oxide-film resistor  
F: nonflammable
- SEMICONDUCTORS  
In each case, u:  $\mu$ , for example:  
uA...:  $\mu$ A... , uPA... ,  $\mu$ PA... ,  
uPB... ,  $\mu$ PB... , uPC... ,  $\mu$ PC... ,  
uPD...,  $\mu$ PD...
- Abbreviation  
AUS : Australian model  
CND : Canadian model  
NE : North European model

When indicating parts by reference number, please include the board name.

The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety. Replace only with part number specified.

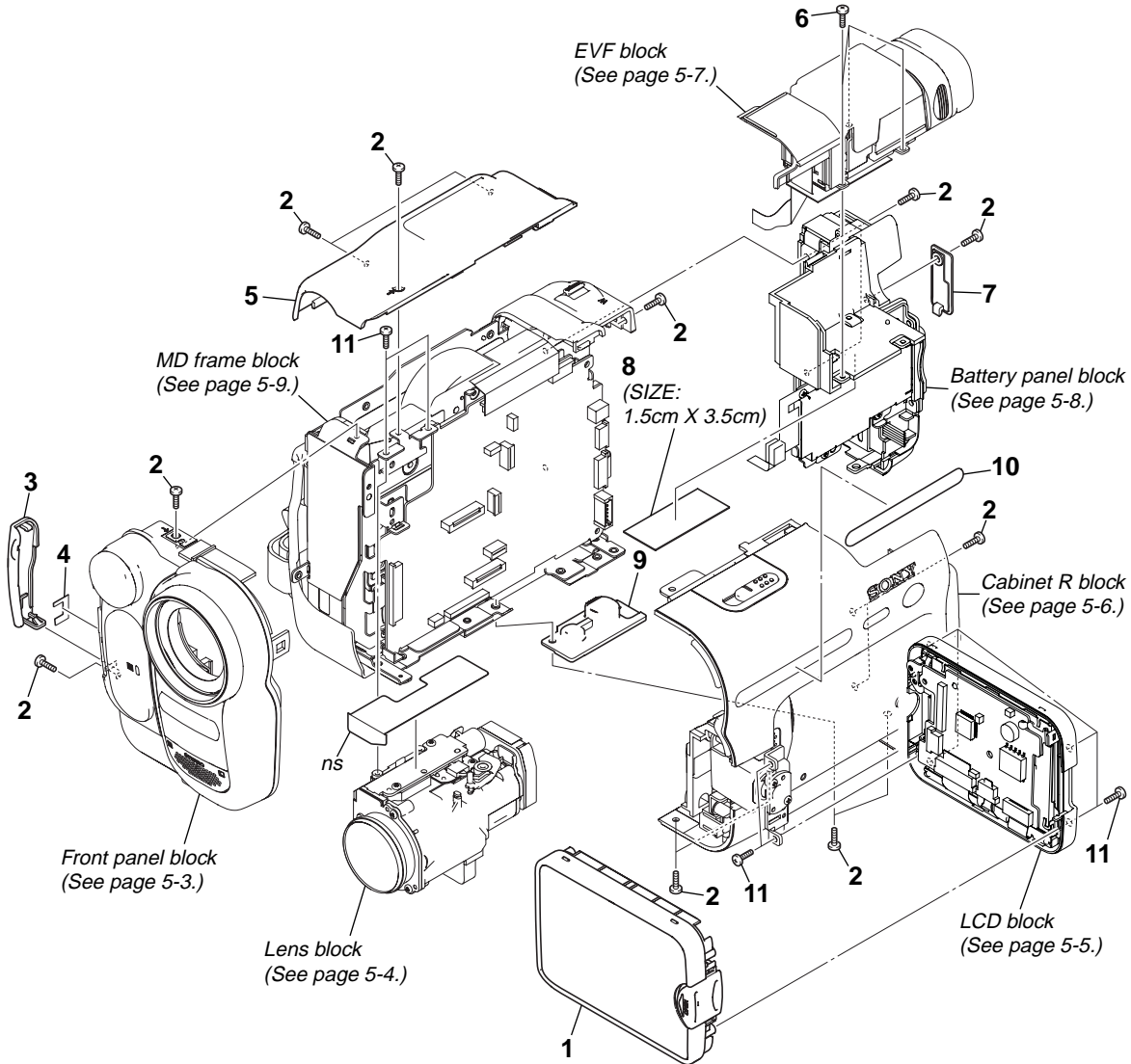
Les composants identifiés par une marque  $\triangle$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

## 5. REPAIR PARTS LIST

### 5-1. EXPLODED VIEWS

#### 5-1-1. OVERALL ASSEMBLY

ns: not supplied



Ref. No.	Part No.	Description
1	X-2024-897-1	CABINET (C (970)) ASSY, P
2	3-080-203-31	SREW (M2), LOCK ACE, P2
3	3-087-813-11	COVER (51), JACK
4	2-548-261-31	SHEET (90), JACK
5	3-087-811-11	CABINET (UPPER) (51)
6	3-078-889-11	SCREW (M1.7)

Ref. No.	Part No.	Description
7	3-087-810-11	LID (51), CPC
8	3-088-616-01	RETAINER (51), EVF FLEXIBLE
9	3-079-012-11	SCREW (30), TRIPOD
10	2-580-024-41	LABEL (90)
11	3-080-204-21	SCREW, TAPPING, P2

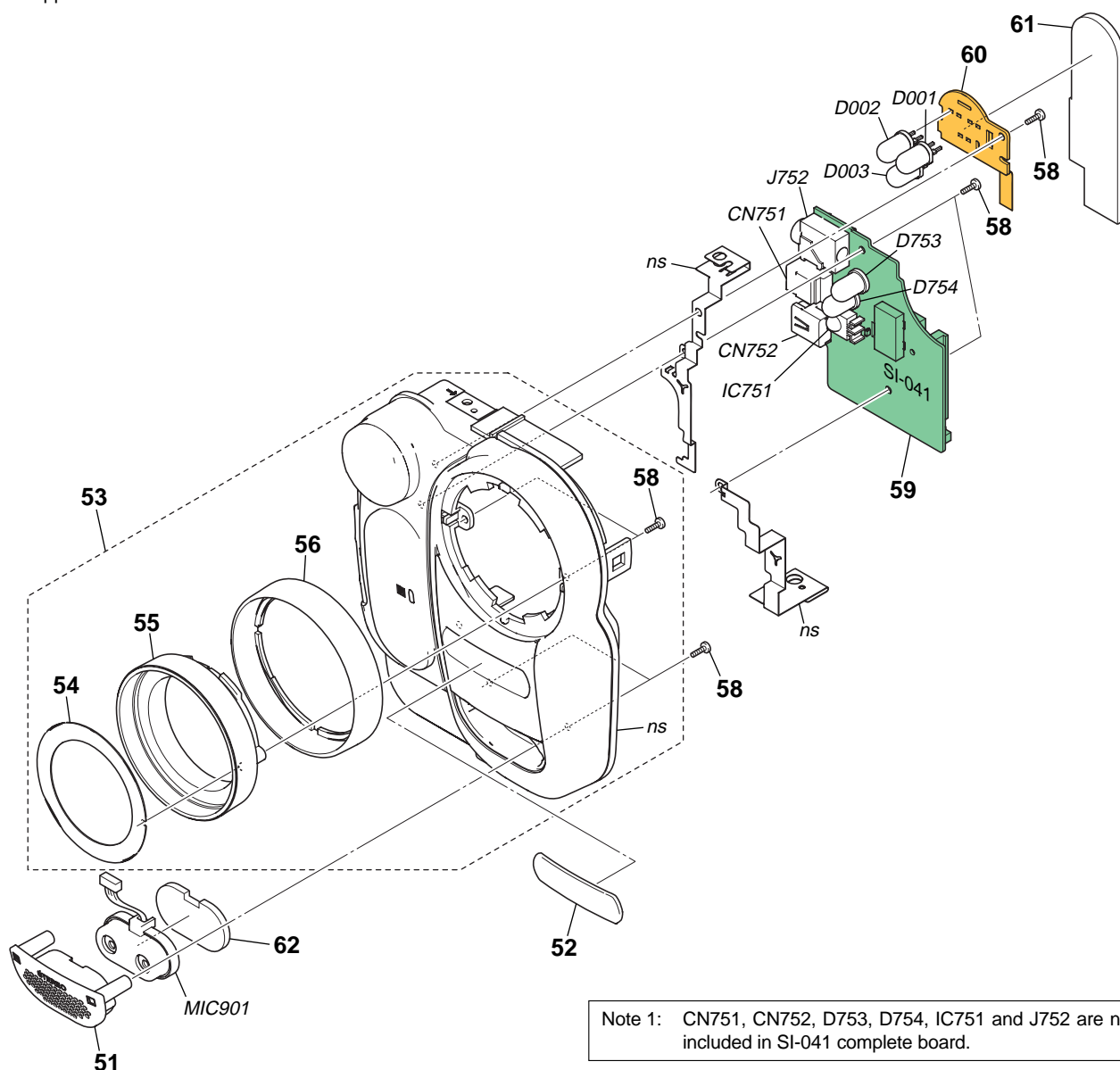
#### CAUTION :

For the part of 8 : RETAINER (51), EVF FLEXIBLE (3-088-616-01), cut WOVEN (T0.25), FABRIC NON (3-076-631-01) into the desired length and use it.

## 5. REPAIR PARTS LIST

### 5-1-2. FRONT PANEL BLOCK

ns: not supplied



Note 1: CN751, CN752, D753, D754, IC751 and J752 are not included in SI-041 complete board.

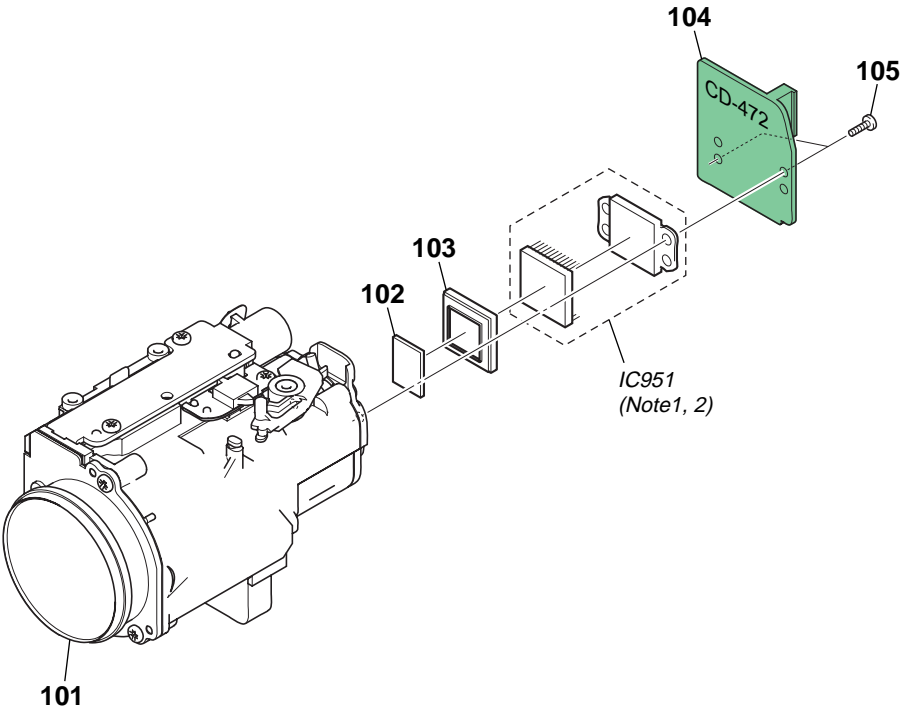
Note 2: D001, D002 and D003 are not included in FP-792 flexible board.

Ref. No.	Part No.	Description
51	3-087-738-31	RETAINER (51), MICROPHONE
52	3-087-740-31	PLATE (51), MAGNIFICATION
53	X-2024-888-1	PANEL (970) ASSY, FRONT
54	3-087-739-01	PLATE (51), NAME
55	3-087-743-01	SCREW (51), FILTER
56	3-087-742-01	RING (51), FRONT
58	3-080-204-21	SCREW, TAPPING, P2
59	A-1082-752-A	SI-041 BOARD, COMPLETE (Note 1)
60	1-860-929-11	FP-792 FLEXIBLE BOARD (Note 2)
61	3-087-994-01	CUSHION (51), JACK
62	3-088-031-01	CUSHION (51), MICROPHONE
CN751	1-794-276-11	CONNECTOR, SQUARE TYPE 4P (DV) (Note 1)

Ref. No.	Part No.	Description
CN752	1-794-962-11	CONNECTOR, SQUARE TYPE (USB 5P) (USB) (Note 1)
D001	6-500-744-01	DIODE NSPW500BS-TL2 (VIDEO LIGHT) (Note 2)
D002	6-500-744-01	DIODE NSPW500BS-TL2 (VIDEO LIGHT) (Note 2)
D003	6-500-744-01	DIODE NSPW500BS-TL2 (VIDEO LIGHT) (Note 2)
D753	8-719-078-24	DIODE DAC3825 (IR EMITTER) (Note 1)
D754	8-719-078-24	DIODE DAC3825 (IR EMITTER) (Note 1)
IC751	6-704-975-01	IC RPM7240-V4 (Note 1)
J752	1-778-040-11	JACK, SMALL TYPE (A/V OUT) (Note 1)
MIC901	1-542-513-11	MICROPHONE

5. REPAIR PARTS LIST

5-1-3. LENS BLOCK



Note 1: IC951 is not included in CD-472 complete board.

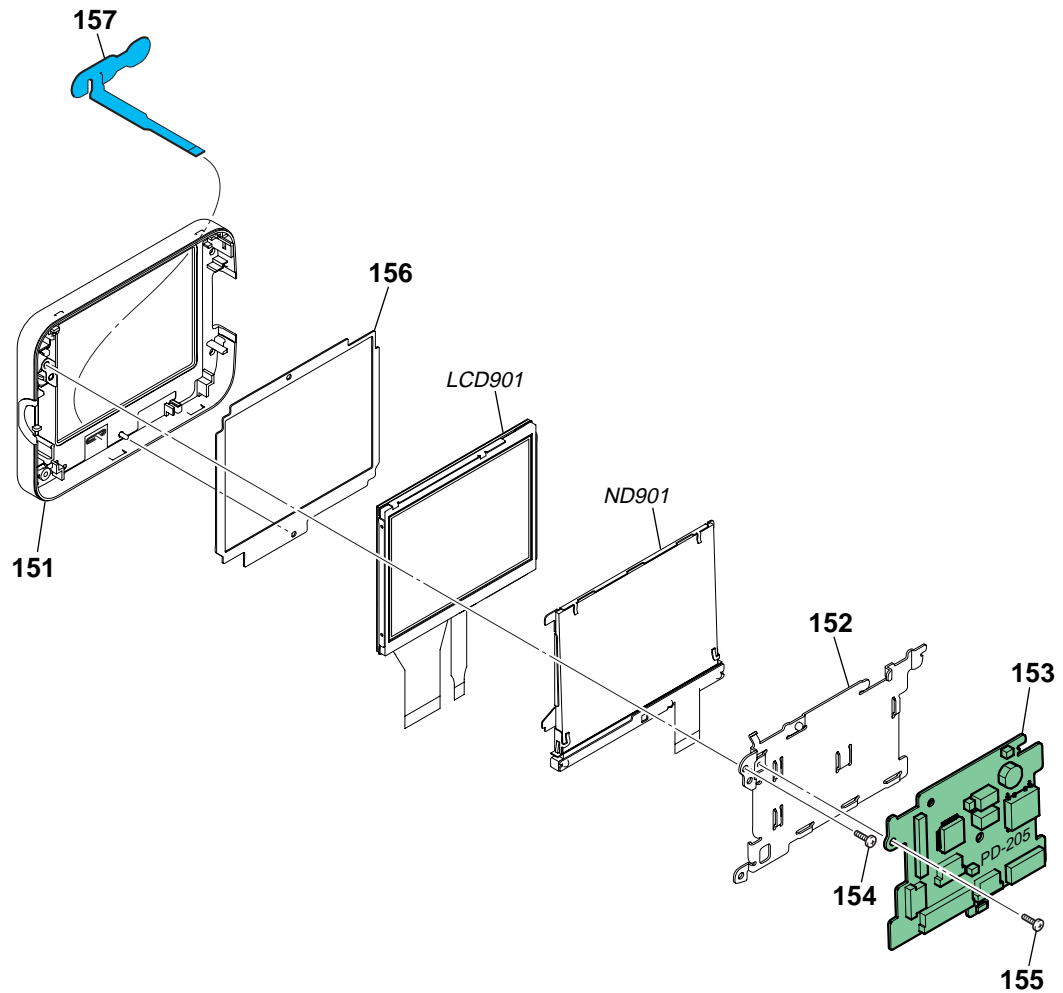
Note 2: Be sure to read "Precautions for Replacement of CCD Imager" on page 4-8 when changing the CCD imager.

Ref. No.	Part No.	Description
101	8-848-765-01	DEVICE, LENS LSV-820A
102	1-758-554-11	FILTER BLOCK, OPTICAL
103	3-053-973-01	RUBBER (W), SEAL
104	A-7111-980-A	CD-472 BOARD, COMPLETE

Ref. No.	Part No.	Description
105	3-080-204-21	SCREW, TAPPING, P2
IC951	A-7013-401-A	CCD BLOCK ASSY (CCD IMAGER) (TRV480E) (Note 1, 2)
IC951	A-7016-724-A	CCD BLOCK ASSY (CCD IMAGER) (TRV380/TRV480) (Note 1, 2)

## 5. REPAIR PARTS LIST

### 5-1-4. LCD BLOCK



The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

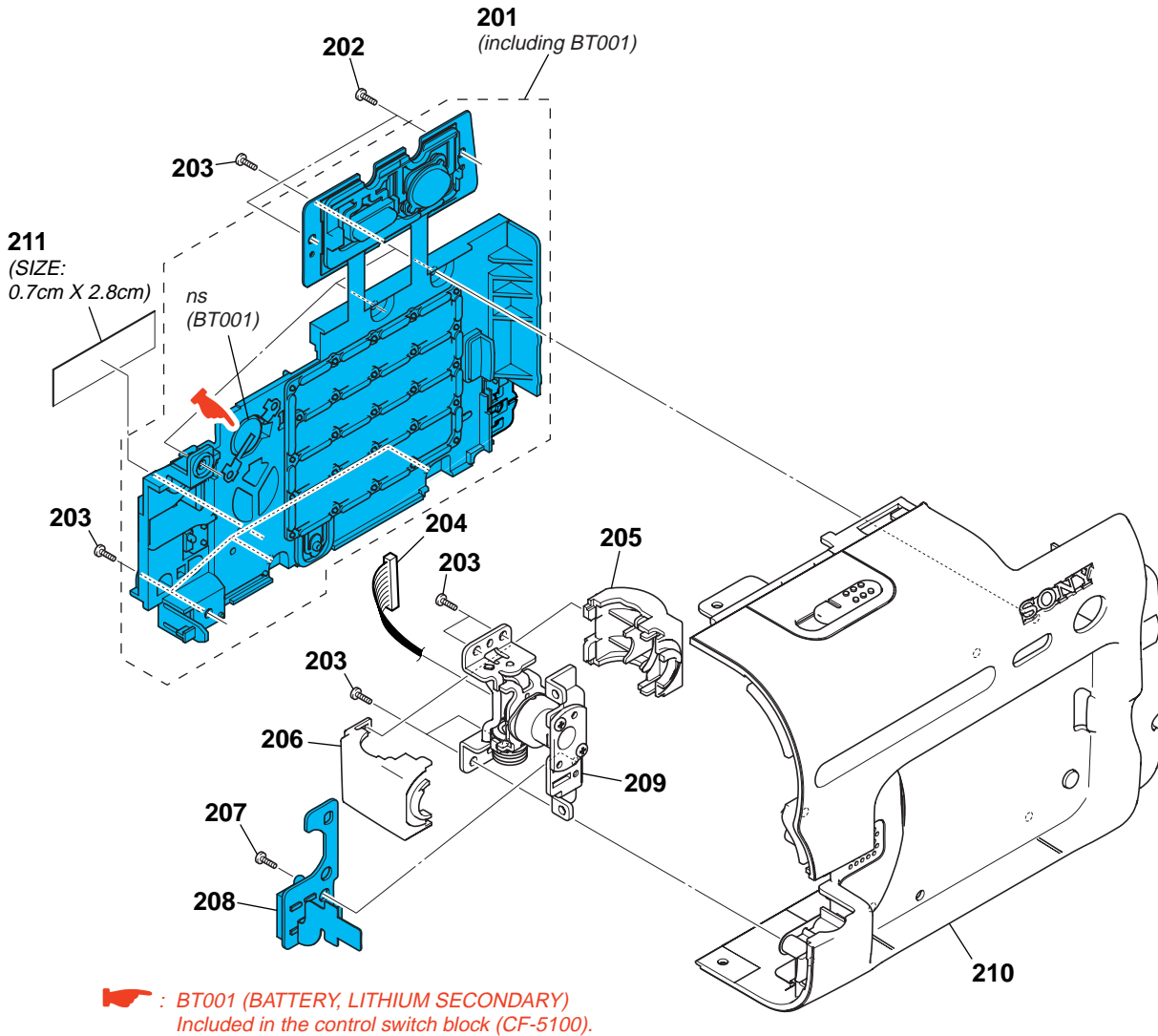
Ref. No.	Part No.	Description
151	X-2024-898-1	CABINET (M (970)) ASSY, P
152	3-087-902-01	FRAME (61), PANEL
153	A-1081-090-A	PD-205 BOARD, COMPLETE
154	3-080-204-21	SCREW, TAPPING, P2
155	3-078-889-11	SCREW (M1.7)

Ref. No.	Part No.	Description
156	3-088-536-01	CUSHION (61), LCD
157	1-479-063-11	KEY BLOCK, CONTROL (SB-9000)
LCD901	8-753-052-10	ACX307AKM-1
$\Delta$ ND901	1-518-951-21	TUBE, FLUORESCENT, COLD CATHODE

## 5. REPAIR PARTS LIST

### 5-1-5. CABINET R BLOCK

ns: not supplied



Ref. No.	Part No.	Description
201	1-478-416-61	KEY BLOCK, CONTROL (CF-5100) (including BT001)
202	3-080-206-11	SCREW, TAPPING, P2
203	3-080-205-21	SCREW, TAPPING, P2
204	1-962-648-11	HARNESS (PD-124)
205	3-087-826-11	COVER (M) (51), HINGE
206	3-087-825-31	COVER (C) (51), HINGE

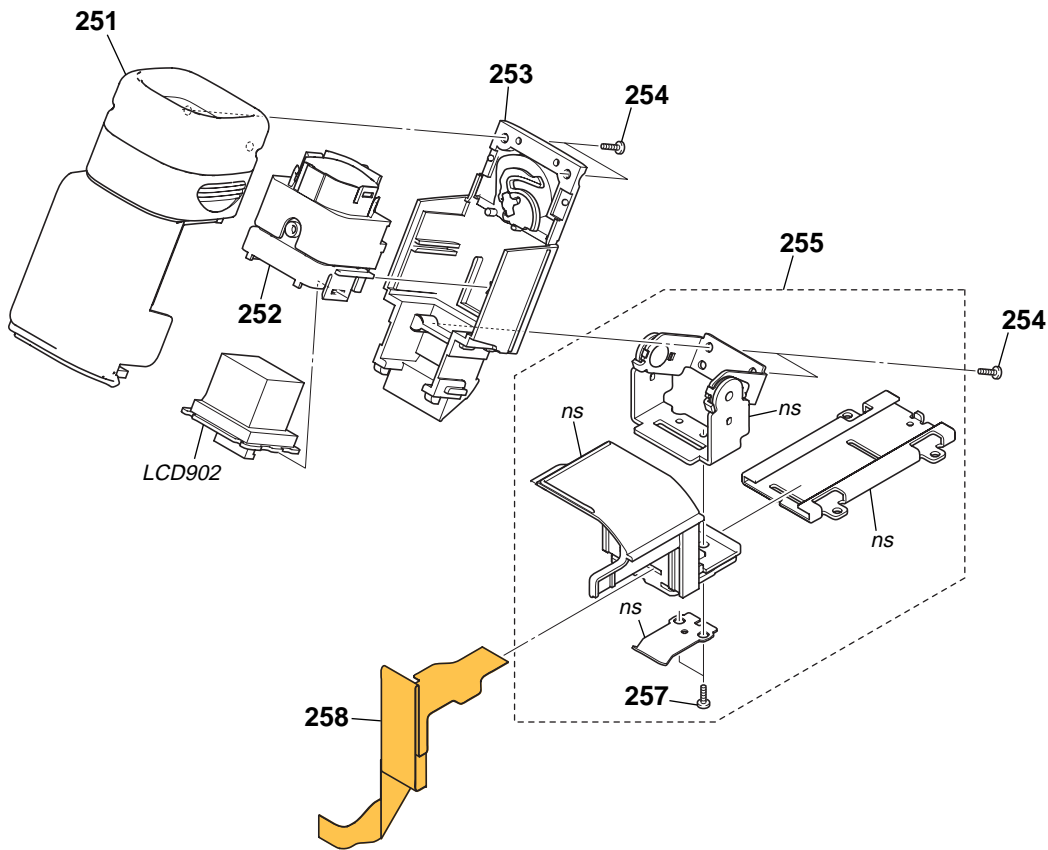
Ref. No.	Part No.	Description
207	3-078-889-11	SCREW (M1.7)
208	1-478-418-11	KEY BLOCK, CONTROL (PR-5100)
209	X-3953-962-1	HINGE (51) ASSY
210	X-2024-894-1	CABINET (R (970)) ASSY
211	CAUTION	TAPE (CF)

**CAUTION :**  
For the part of 211 : TAPE (CF) (3-090-115-01), cut WOVEN (T0.25), FABRIC NON (3-076-631-01) into the desired length and use it.

5. REPAIR PARTS LIST

5-1-6. EVF BLOCK

ns: not supplied



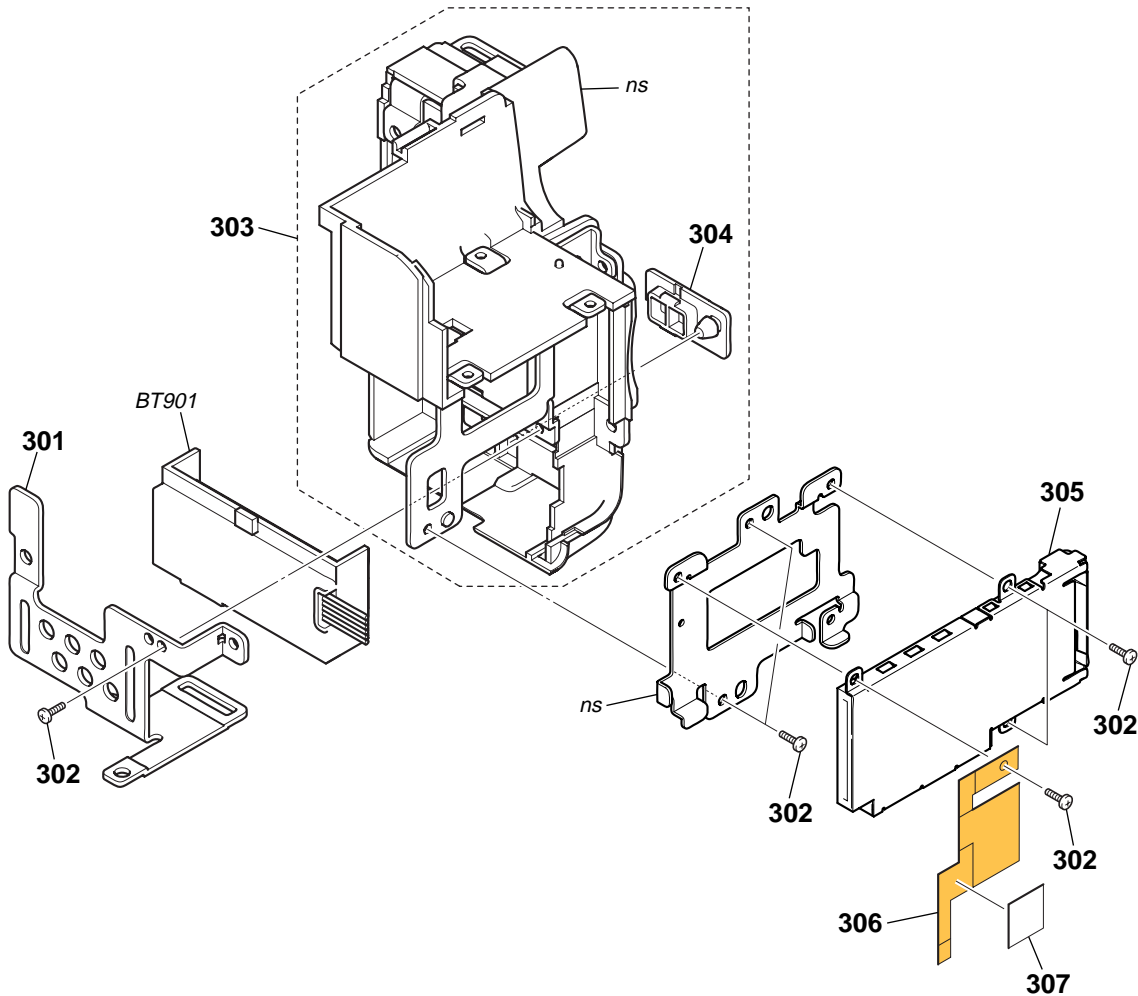
Ref. No.	Part No.	Description
251	X-2025-532-1	CABINET (UPPER (955)) ASSY, EVF
252	X-3951-166-1	LENS (M) ASSY, VF
253	X-2025-533-1	CABINET (LOWER (905)) ASSY, EVF
254	3-080-204-21	SCREW, TAPPING, P2
255	X-2048-474-1	BASE (910) ASSY, SLIDE
257	3-080-203-31	SCREW (M2), LOCK ACE, P2

Ref. No.	Part No.	Description
258	1-860-928-12	FP-797 FLEXIBLE BOARD
LCD902	1-805-465-61	INDICATOR MODULE LIQUID CRYSTAL (TRV380/TRV480)
LCD902	1-805-465-81	INDICATOR MODULE LIQUID CRYSTAL (TRV480E)

5. REPAIR PARTS LIST

5-1-7. BATTERY PANEL BLOCK

ns: not supplied



Ref. No.	Part No.	Description
301	3-087-799-01	SHEET METAL (LOWER) (51), STRAP
302	3-078-889-11	SCREW (M1.7)
303	X-2024-900-1	PANEL (970) ASSY, BATTERY
304	3-072-305-11	LID (2500), JACK

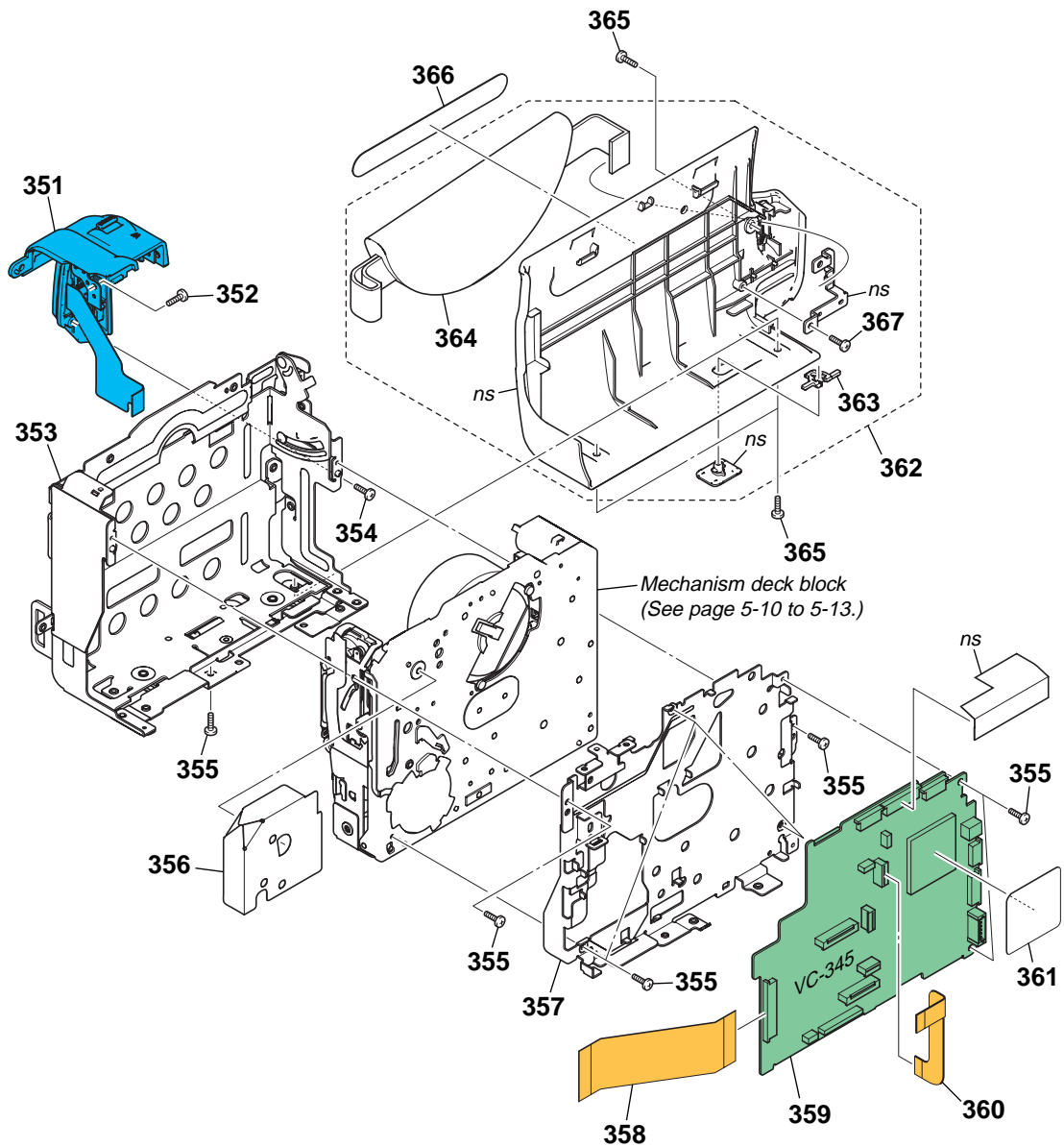
Ref. No.	Part No.	Description
305	1-816-271-21	MEMORY STICK CONNECTOR 10P
306	1-860-931-11	FP-799 FLEXIBLE BOARD
307	2-583-929-01	SHEET (970), MS SHIELD
BT901	1-694-772-11	TERMINAL BOARD, BATTERY



## 5. REPAIR PARTS LIST

### 5-1-8. MD FRAME BLOCK

ns: not supplied



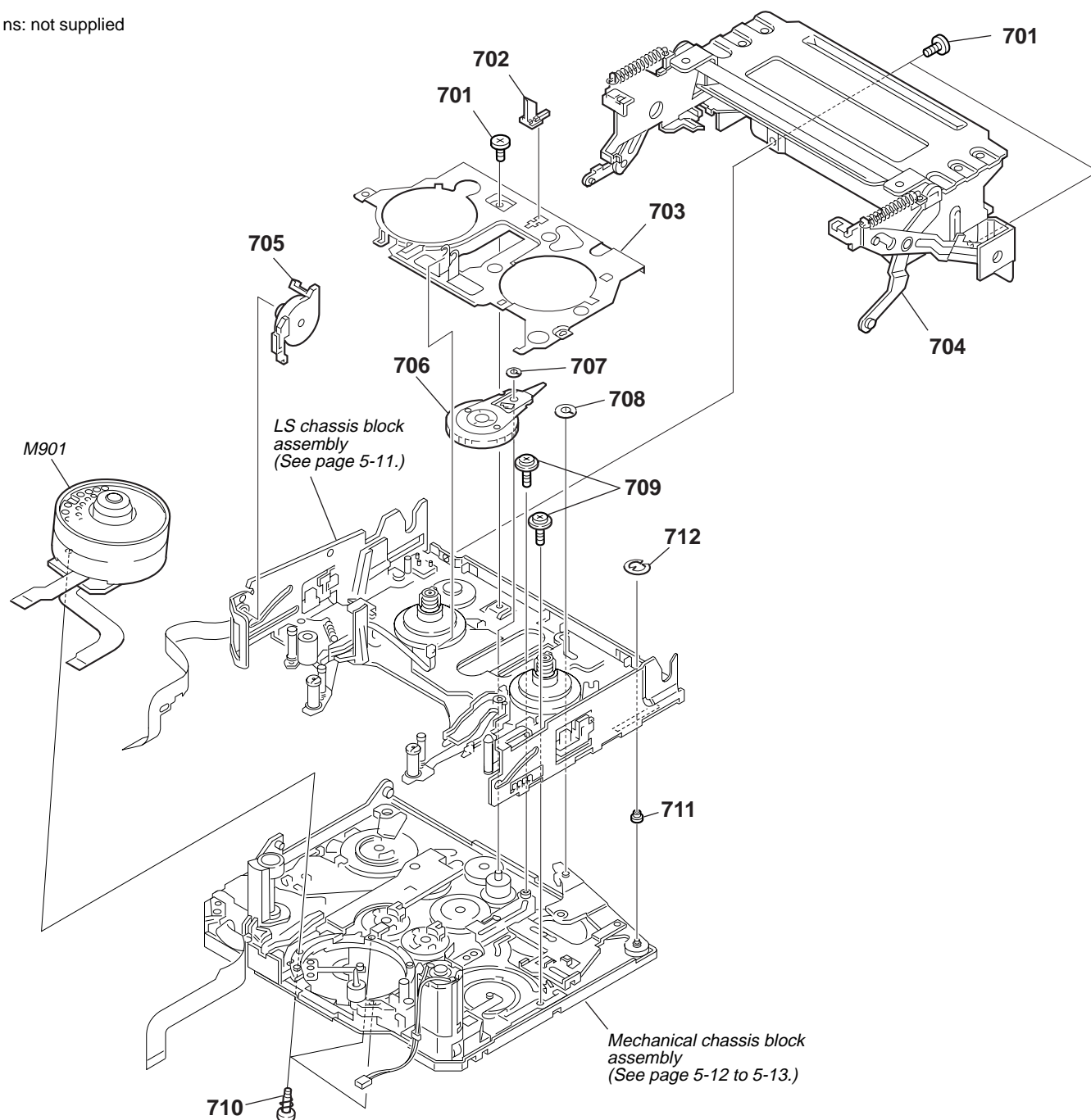
Ref. No.	Part No.	Description
351	1-478-417-81	KEY BLOCK, CONTROL (SS-5100)
352	3-080-253-01	SCREW (M1.7), LOCK ACE, P2
353	X-3953-958-2	FRAME (51) ASSY, CS
354	3-080-204-21	SCREW, TAPPING, P2
355	3-078-889-11	SCREW (M1.7)
356	3-066-169-01	SHEET (30), MD
357	3-087-809-02	FRAME (51), MD
358	1-860-927-11	FP-796 FLEXIBLE BOARD
359	A-1093-414-A	VC-345 BOARD, COMPLETE (SERVICE) (TRV380)
359	A-1093-415-A	VC-345 BOARD, COMPLETE (SERVICE) (TRV480/TRV480E)

Ref. No.	Part No.	Description
360	1-860-930-11	FP-794 FLEXIBLE BOARD
361	3-089-368-01	LABEL, FUSE REPLACEMENT (51) (TRV380/TRV480)
362	X-2048-472-1	CABINET (L (910)) ASSY
363	3-978-765-01	SLIDER, G LOCK
364	3-087-802-01	BELT (51), GRIP
365	3-080-203-31	SREW (M2), LOCK ACE, P2
366	2-548-267-31	LABEL (L (95)) (TRV380)
366	2-548-267-41	LABEL (L (95)) (TRV480)
366	2-548-267-51	LABEL (L (95)) (TRV480E)
367	3-080-204-11	SCREW, TAPPING, P2

## 5. REPAIR PARTS LIST

### 5-1-9. CASSETTE COMPARTMENT ASSEMBLY, DRUM ASSEMBLY

ns: not supplied



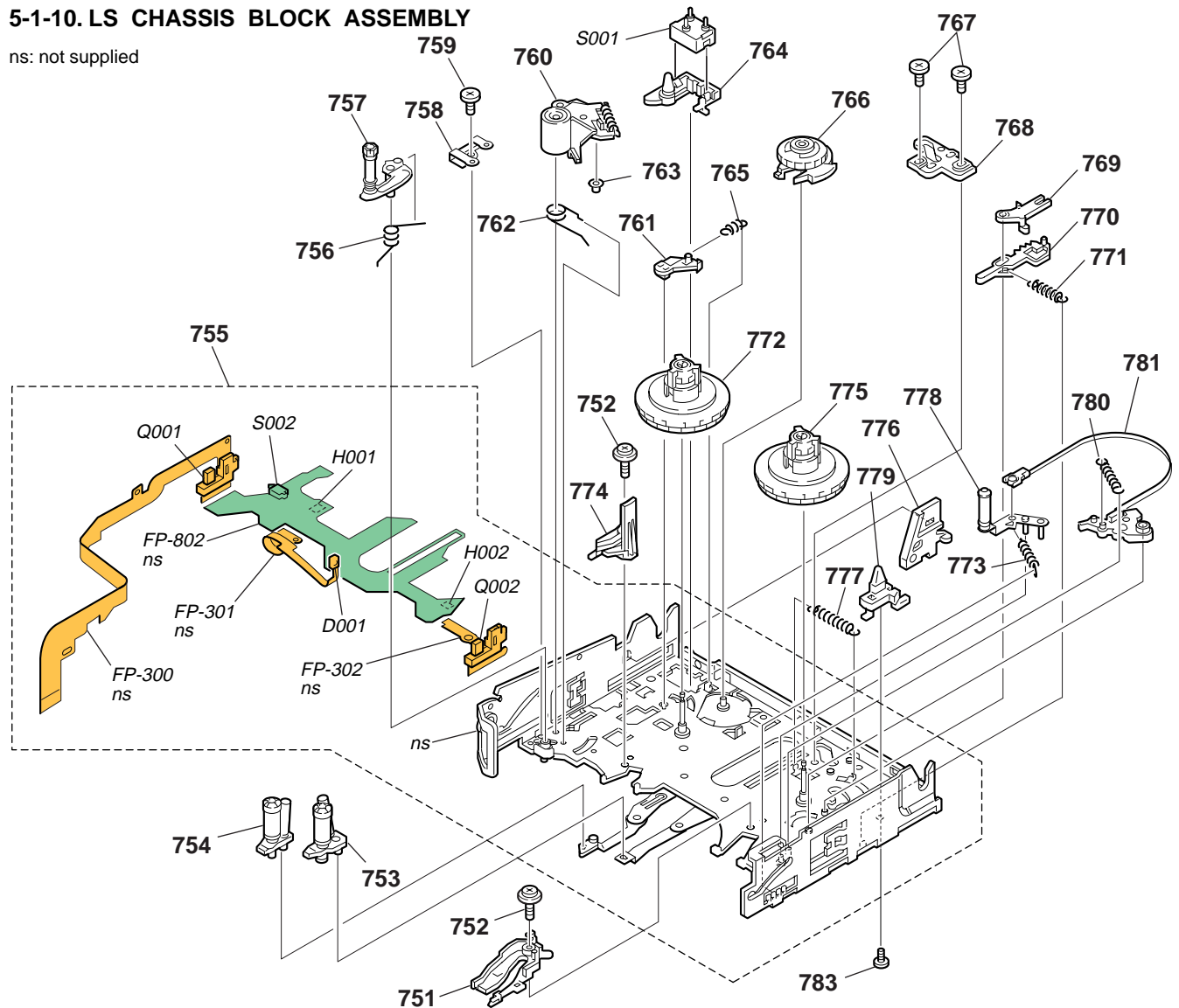
Ref. No.	Part No.	Description
701	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA
702	3-065-895-01	LEVER, REEL RELEASE
703	3-065-896-01	PLATE, BLIND
704	X-3951-298-1	CASSETTE COMPARTMENT ASSY
705	X-3951-302-1	DAMPER ASSY
706	X-3951-297-1	GEAR ASSY, R DRIVE
707	3-065-840-01	CUT (0.98X3X0.13), LUMILER (W)

Ref. No.	Part No.	Description
708	3-065-935-01	HLC CUT 1.8X4X0.5
709	3-947-503-01	SCREW (M1.4)
710	X-3951-299-1	SCREW ASSY, DRUM FITTING
711	3-074-309-01	ROLLER A, LS GUIDE
712	7-624-101-04	STOP RING 1.2 (E TYPE)
M901	A-7048-986-A	DRUM (DKH-04B-R) (SERVICE)

## 5. REPAIR PARTS LIST

### 5-1-10. LS CHASSIS BLOCK ASSEMBLY

ns: not supplied



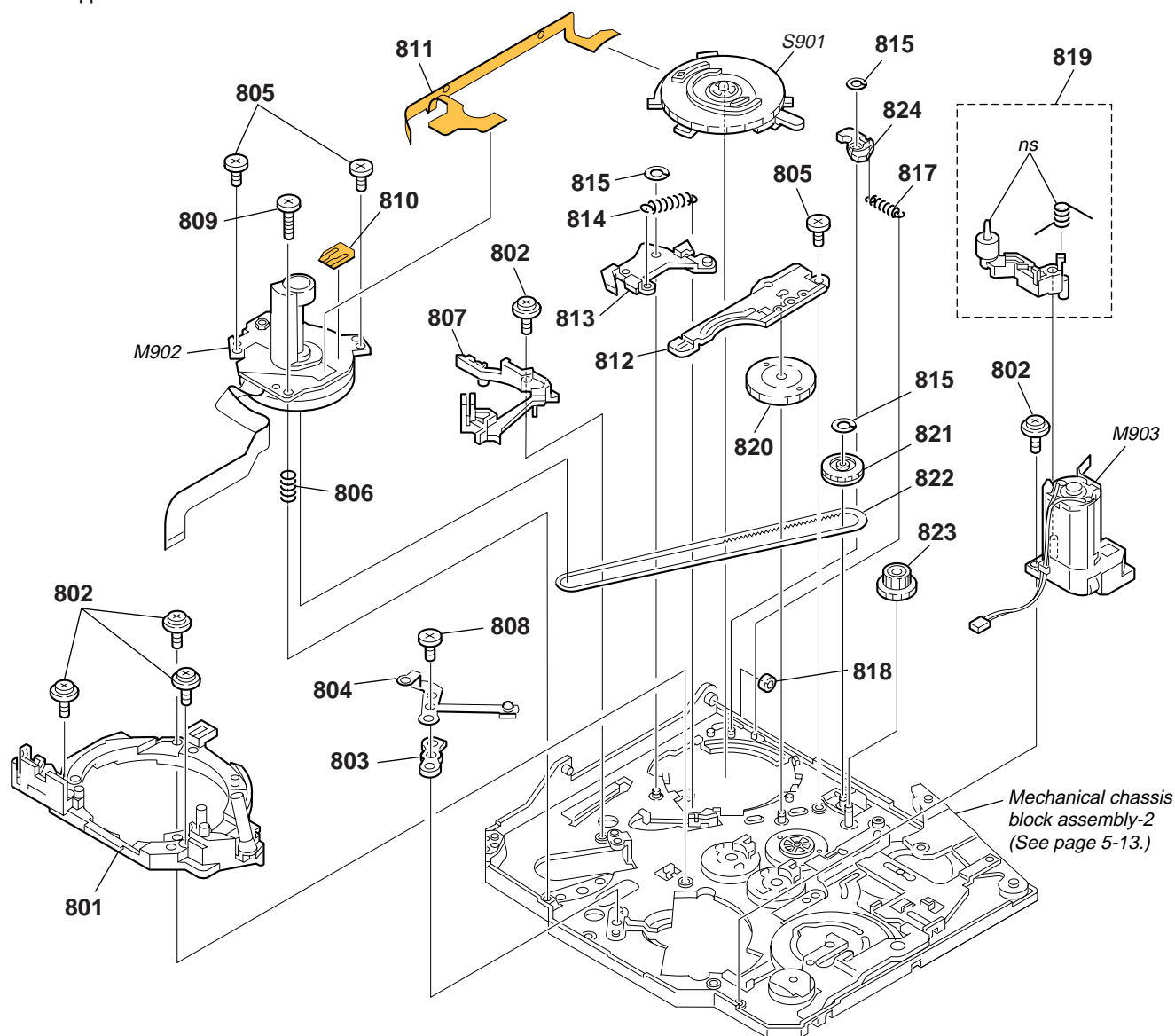
Ref. No.	Part No.	Description
751	3-065-822-02	RAIL (S), GUIDE
752	3-947-503-01	SCREW (M1.4)
753	A-7096-416-B	BASE (S) BLOCK ASSY, GUIDE
754	A-7096-415-A	BASE (T) BLOCK ASSY, GUIDE
755	A-7096-426-A	CHASSIS ASSY, LS
756	3-065-802-01	SPRING, TG7 ARM
757	A-7096-414-A	ARM BLOCK ASSY, TG7
758	3-065-801-01	RETAINER, TG7
759	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA
760	X-3951-303-1	ARM ASSY, PINCH
761	3-065-823-01	ARM, T RATCHET
762	3-065-794-01	ROAD (SPR), PINCH ARM
763	3-065-792-01	ROLLER, P LIM ARM
764	3-065-834-01	GUIDE (T), CASSETTE
765	3-065-824-01	SPRING, T RATCHET
766	A-7096-417-A	SOFT ASSY, T
767	3-071-650-01	SCREW (M1.7) (S)
768	3-065-832-01	PLATE, LS CAM
769	3-065-828-01	ARM, S RATCHET
770	3-065-829-01	PLATE, S RATCHET (RE)

Ref. No.	Part No.	Description
771	3-065-830-01	SPRING, S RATCHET
772	X-3951-288-1	TABLE (T) ASSY, REEL
773	3-065-819-01	SPRING, TG1 ARM
774	3-065-821-01	RAIL (T), GUIDE
775	X-3951-289-1	TABLE (S) ASSY, REEL
776	3-065-833-01	GUIDE, LOCK
777	3-065-831-01	PLATE (SPR), RE RETURN
778	X-3951-304-1	ARM ASSY, TG1
779	3-065-835-01	GUIDE (S), CASSETTE
780	3-065-820-01	SPRING, RVS ARM
781	X-3951-296-1	BAND (ASSY), BT
783	3-067-167-01	SCREW (M1.4X2), CAMERA TAPPING
D001	8-719-988-42	DIODE GL453 (TAPE LED)
H001	8-719-033-37	ELEMENT, HALL HW-105C (T REEL)
H002	8-719-033-37	ELEMENT, HALL HW-105C (S REEL)
Q001	8-729-907-25	PHOTO TRANSISTOR PT4850F (TAPE TOP)
Q002	8-729-907-25	PHOTO TRANSISTOR PT4850F (TAPE END)
S001	1-692-614-11	SWITCH, PUSH (3 KEY) (REC PROOF)
S002	1-572-688-11	SWITCH, PUSH LEVER (1 KEY) (C. C. LOCK)

## 5. REPAIR PARTS LIST

### 5-1-11. MECHANICAL CHASSIS BLOCK ASSEMBLY-1

ns: not supplied

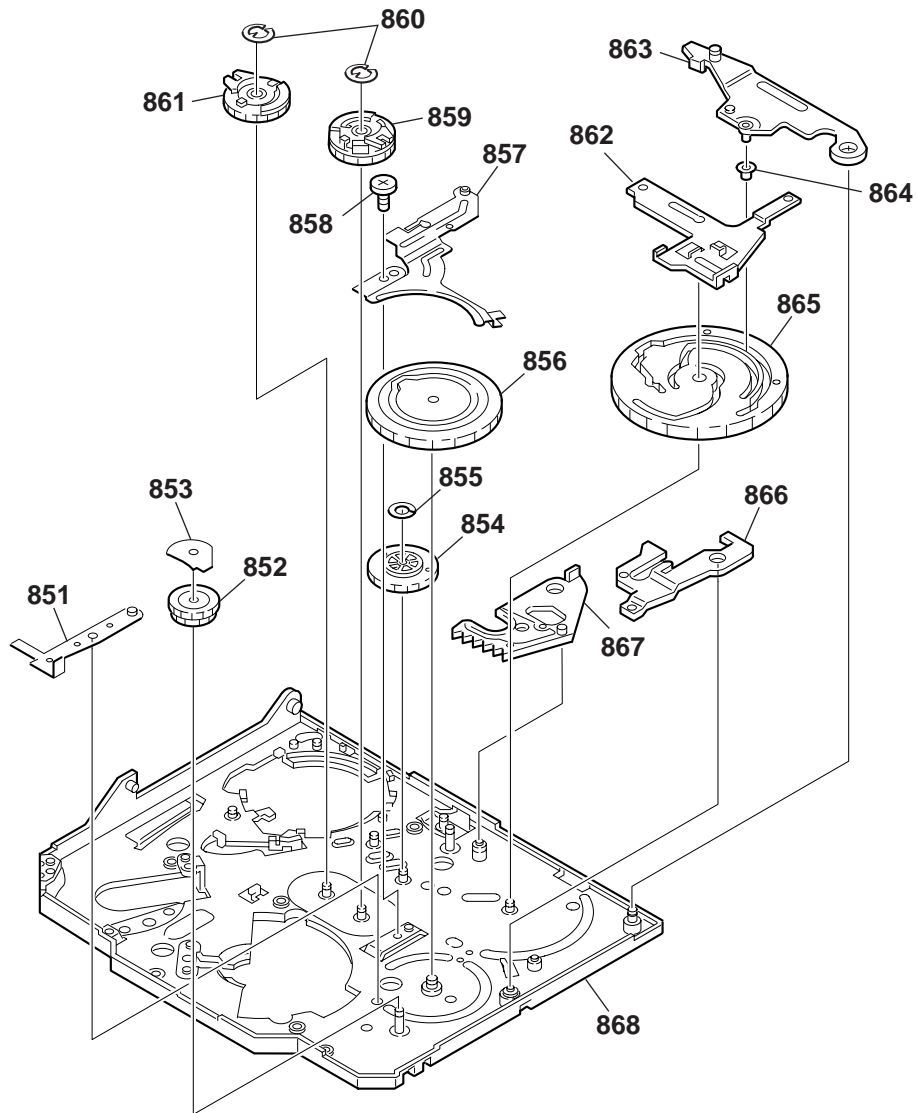


Ref. No.	Part No.	Description
801	A-7096-422-A	BASE ASSY, DRUM
802	3-947-503-01	SCREW (M1.4)
803	3-065-928-01	SPACER, GROUND
804	3-065-927-01	GROUND, DRUM
805	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA
806	3-067-154-01	SPRING, CAPSTAN
807	3-065-931-01	RAIL (T2), GUIDE
808	X-3947-398-1	SCREW ASSY, M1.7 PW
809	3-065-933-01	PAN (2 MAIN 1.4X4.5), CAMERA
810	1-677-049-11	FP-228 FLEXIBLE BOARD (DEW SENSOR)
811	1-680-434-11	FP-299 FLEXIBLE BOARD
812	3-065-877-01	PLATE (T), GUIDE LOCK
813	X-3951-301-1	PLATE ASSY, PINCH PRESSURE

Ref. No.	Part No.	Description
814	3-065-881-01	SPRING, P PRESSURE PLATE
815	3-065-934-01	HLW CUT 0.98X3X0.25
817	3-065-898-01	SPRING, EJECT ARM
818	3-065-870-01	ROLLER, LS GUIDE
819	A-7096-421-A	ARM ASSY, HCL
820	3-065-918-01	GEAR (2), CAM RELAY
821	A-7096-419-A	GEAR ASSY, CHANGE
822	3-065-902-01	BELT, TIMING
823	3-065-905-01	GEAR, RELAY
824	3-065-882-01	ARM, EJECT
M902	8-835-701-01	MOTOR, DC SCE13A/C-NP (CAPSTAN)
M903	A-7096-420-A	MOTOR ASSY, LD (LOADING)
S901	1-786-096-11	SWITCH, ROTARY (MODE SWITCH)

## 5. REPAIR PARTS LIST

### 5-1-12. MECHANICAL CHASSIS BLOCK ASSEMBLY-2



Ref. No.	Part No.	Description
851	3-065-920-01	ARM, HC DRIVE
852	3-065-913-01	GEAR (4), LD
853	3-065-914-01	SHEET, COVER
854	3-065-917-01	GEAR (1), CAM RELAY
855	3-065-934-01	HLW CUT 0.98X3X0.25
856	3-065-915-01	GEAR (1), CAM
857	3-065-878-01	PLATE (S), GUIDE LOCK
858	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA
859	A-7096-413-A	GEAR (S) ASSY, GUIDE

Ref. No.	Part No.	Description
860	7-624-101-04	STOP RING 1.2 (E TYPE)
861	A-7096-412-A	GEAR (T) ASSY, GUIDE
862	X-3951-307-1	PLATE ASSY, M SLIDE
863	X-3951-305-1	ARM ASSY, LS
864	3-065-901-01	ROLLER, LS ARM
865	3-065-916-01	GEAR (2), CAM
866	3-065-919-01	ARM, T1 LIMITTER
867	X-3951-308-1	ARM ASSY, GL
868	X-3951-300-2	CHASSIS ASSY, MECHANICAL

**CD-472****FP-228****FP-299****FP-300****FP-301****FP-302****FP-792****FP-802****PD-205****5-2. ELECTRICAL PARTS LIST**

Ref. No.	Part No.	Description
	A-7111-980-A	CD-472 BOARD, COMPLETE ***** (IC951 is not included in this complete board.)
		< CAPACITOR >
C951	1-126-395-11	ELECT CHIP 22uF 20% 16V
C953	1-128-994-21	ELECT CHIP 47uF 20% 10V
C955	1-164-360-11	CERAMIC CHIP 0.1uF 16V
		< CONNECTOR >
CN951	1-815-762-11	CONNECTOR, FFC/FPC 14P
		< IC >
IC951	A-7013-401-A	CCD BLOCK ASSY (CCD IMAGER) (Note 1) (TRV480E)
IC951	A-7016-724-A	CCD BLOCK ASSY (CCD IMAGER) (Note 1) (TRV380/TRV480)
		< COIL >
L951	1-469-528-91	INDUCTOR 100uH
		< TRANSISTOR >
Q951	8-729-117-73	TRANSISTOR 2SC4178-F14
		< RESISTOR >
R952	1-218-940-11	RES-CHIP 82 5% 1/16W
R953	1-218-959-11	RES-CHIP 3.3K 5% 1/16W
R970	1-216-864-11	SHORT CHIP 0
	1-677-049-11	FP-228 FLEXIBLE BOARD (DEW SENSOR) *****
	1-680-434-11	FP-299 FLEXIBLE BOARD ***** (S901 is not included in this flexible board.)
		< SWITCH >
S901	1-786-096-11	SWITCH, ROTARY (MODE SWITCH)
	(Not supplied)	FP-300 FLEXIBLE BOARD (Note 2) *****
		< PHOTO TRANSISTOR >
Q001	8-729-907-25	PHOTO TRANSISTOR PT4850F (TAPE TOP)
	(Not supplied)	FP-301 FLEXIBLE BOARD (Note 2) *****
		< DIODE >
D001	8-719-988-42	DIODE GL453S (TAPE LED)

Ref. No.	Part No.	Description
	(Not supplied)	FP-302 FLEXIBLE BOARD (Note 2) ***** < PHOTO TRANSISTOR >
Q002	8-729-907-25	PHOTO TRANSISTOR PT4850F (TAPE END)
	1-860-929-11	FP-792 FLEXIBLE BOARD ***** (D001, D002 and D003 are not included in this flexible board.)
		< DIODE >
D001	6-500-744-01	DIODE NSPW500BS-TL2 (VIDEO LIGHT)
D002	6-500-744-01	DIODE NSPW500BS-TL2 (VIDEO LIGHT)
D003	6-500-744-01	DIODE NSPW500BS-TL2 (VIDEO LIGHT)
	(Not supplied)	FP-802 FLEXIBLE BOARD (Note 2) *****
		< HOLE ELEMENT >
H001	8-719-033-37	ELEMENT, HALL HW-105C (T REEL)
H002	8-719-033-37	ELEMENT, HALL HW-105C (S REEL)
		< SWITCH >
S001	1-692-614-11	SWITCH, PUSH (3 KEY) (REC PROOF)
S002	1-572-688-11	SWITCH, PUSH LEVER (1KEY) (C.C. LOCK)
	A-1081-090-A	PD-205 BOARD, COMPLETE *****
		< CAPACITOR >
C6001	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C6002	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V
C6003	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V
C6004	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V
C6005	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V
C6006	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V
C6007	1-115-566-11	CERAMIC CHIP 4.7uF 10% 10V
C6009	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C6010	1-164-739-11	CERAMIC CHIP 560PF 5% 50V
C6011	1-164-657-11	CERAMIC CHIP 0.015uF 10% 50V
C6012	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C6013	1-100-371-11	CERAMIC CHIP 12PF 5% 3.15KV
C6014	1-115-566-11	CERAMIC CHIP 4.7uF 10% 10V
C6015	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V
C6017	1-165-908-11	CERAMIC CHIP 1uF 10% 10V
C6018	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V
C6019	1-104-847-11	TANTAL. CHIP 22uF 20% 4V
C6020	1-100-502-11	TANTAL. CHIP 3.3uF 20% 25V
C6028	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V
C6029	1-100-252-11	CERAMIC CHIP 0.1uF 10% 6.3V

Note 1: Be sure to read "Precautions for Replacement of CCD Imager" on page 4-5 when changing the CCD imager.

Note 2: FP-300, FP-301, FP-302 and FP-802 flexible boards are included in CHASSIS ASSY, LS (A-7096-426-A).

Ref. No.	Part No.	Description
< CONNECTOR >		
CN6001	1-794-997-11	PIN, CONNECTOR 20P
CN6003	1-764-709-11	CONNECTOR, FFC/FPC (LIF) 10P
CN6004	1-815-031-11	CONNECTOR, FFC/FPC (ZIF) 24P
CN6005	1-816-176-11	CONNECTOR, FFC/FPC (ZIF) 6P
CN6006	1-691-370-11	CONNECTOR, FFC/FPC 6P
CN6007	1-816-176-11	CONNECTOR, FFC/FPC (ZIF) 6P
< DIODE >		
D6001	8-719-050-42	DIODE RD3.3UM-T1B
D6004	8-719-073-01	DIODE MA111-(K8).S0
< IC >		
IC6001	8-752-115-66	IC CXA3622BR-T4
IC6002	6-706-717-01	IC NJM2867F28 (TE2)
< COIL >		
L6001	1-469-527-91	INDUCTOR 47uH
L6002	1-412-056-11	INDUCTOR 4.7uH
L6003	1-428-878-11	INDUCTOR 82uH
< TRANSISTOR >		
Q6002	6-550-065-01	TRANSISTOR CPH5504-TL-E
Q6004	8-729-054-48	TRANSISTOR UP04601008S0
Q6005	8-729-054-48	TRANSISTOR UP04601008S0
Q6006	8-729-041-23	TRANSISTOR NDS356AP
Q6008	8-729-054-89	TRANSISTOR UP04211008S0
Q6009	8-729-054-44	TRANSISTOR UP04111008S0
< RESISTOR >		
R6005	1-216-824-11	METAL CHIP 1.8K 5% 1/10W
R6009	1-218-975-11	RES-CHIP 68K 5% 1/16W
R6010	1-218-969-11	RES-CHIP 22K 5% 1/16W
R6012	1-208-911-11	METAL CHIP 10K 0.5% 1/16W
R6013	1-208-935-11	METAL CHIP 100K 0.5% 1/16W
R6014	1-218-949-11	RES-CHIP 470 5% 1/16W
R6019	1-218-965-11	RES-CHIP 10K 5% 1/16W
R6021	1-218-977-11	RES-CHIP 100K 5% 1/16W
R6022	1-218-965-11	RES-CHIP 10K 5% 1/16W
R6023	1-216-847-11	METAL CHIP 150K 5% 1/10W
R6030	1-218-949-11	RES-CHIP 470 5% 1/16W
R6044	1-218-960-11	RES-CHIP 3.9K 5% 1/16W
R6045	1-218-966-11	RES-CHIP 12K 5% 1/16W
R6046	1-218-970-11	RES-CHIP 27K 5% 1/16W
< COMPOSITION CIRCUIT BLOCK >		
RB6001	1-234-369-21	RES, NETWORK 10 (1005 x4)
< TRANSFORMER >		
△ T6001	1-435-786-31	TRANSFORMER, INVERTER

Ref. No.	Part No.	Description
A-1082-752-A SI-041 BOARD, COMPLETE		
*****		
(CN751, CN752, D753, D754, IC751 and J752 are not included in this complete board.)		
< CAPACITOR >		
C758	1-127-760-11	CERAMIC CHIP 4.7uF 10% 6.3V
C759	1-127-760-11	CERAMIC CHIP 4.7uF 10% 6.3V
< CONNECTOR >		
CN751	1-794-276-11	CONNECTOR, SQUARE TYPE 4P (DV)
CN752	1-794-962-11	CONNECTOR, SQUARE TYPE (USB 5P) (USB)
CN753	1-816-232-11	PIN, CONNECTOR (PC BOARD) 4P
CN754	1-818-074-11	CONNECTOR, FFC/FPC (ZIF) 36P
< DIODE >		
D751	6-500-044-01	DIODE DF6A6.8FU (TE85R)
D753	8-719-078-24	DIODE DAC3825 (IR EMITTER)
D754	8-719-078-24	DIODE DAC3825 (IR EMITTER)
D755	8-719-027-76	DIODE 1SS357-TPH3
D756	6-500-044-01	DIODE DF6A6.8FU (TE85R)
D759	6-500-817-01	DIODE SML-512UWT86 (TALLY)
< FERRITE BEAD >		
FB751	1-414-760-21	INDUCTOR, FERRITE BEAD
FB752	1-414-760-21	BEAD, FERRITE (CHIP) (1608)
FB753	1-414-760-21	BEAD, FERRITE (CHIP) (1608)
< IC >		
IC751	6-704-975-01	IC RPM7240-V4
< JACK >		
J752	1-778-040-11	JACK, SMALL TYPE (A/V)
< TRANSISTOR >		
Q751	8-729-023-22	TRANSISTOR 2SD2114K
< RESISTOR >		
R752	1-216-806-11	METAL CHIP 56 5% 1/10W
R753	1-216-806-11	METAL CHIP 56 5% 1/10W
R763	1-216-817-11	METAL CHIP 470 5% 1/10W
R764	1-216-833-11	METAL CHIP 10K 5% 1/10W
R765	1-216-833-11	METAL CHIP 10K 5% 1/10W
< SENSOR >		
SE751	1-476-807-41	SENSOR, ANGULAR VELOCITY (YAW)
SE752	1-476-807-31	SENSOR, ANGULAR VELOCITY (PITCH)

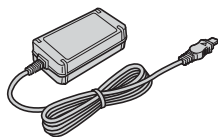
Electrical parts list of the VC-345 board is not shown.  
Pages 5-16 to 5-24 are not shown.

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

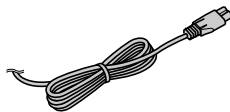
Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



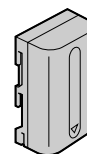
## Checking supplied accessories.



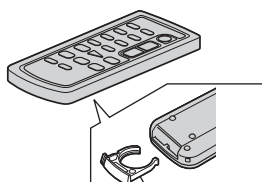
AC-L15A/L15B AC Adaptor (1)  
 ▲ 1-477-533-51



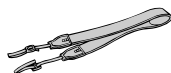
Power cord (1)  
 ▲ 1-696-819-22 (AUS)  
 ▲ 1-769-608-11 (AEP, NE, E)  
 ▲ 1-783-374-11 (UK)  
 ▲ 1-790-542-12 (US, CND, PL)



Rechargeable battery pack  
 NP-FM30 (1)  
 ▲ A-7096-387-A (US, CND)  
 ▲ A-7096-388-B  
 (EXCEPT US, CND)



Battery holder  
 3-083-973-01  
 Wireless Remote Commander  
 RMT-831 (1)  
 1-477-898-41

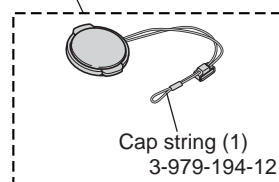


Shoulder strap (1)  
 3-987-015-02



A/V connecting cable (1)  
 1-824-097-41

Lens cap (1)  
 X-3952-971-1



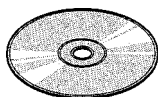
Cap string (1)  
 3-979-194-12



USB cable (1)  
 1-829-868-31



Conversion 2P adaptor (1)  
 ▲ 1-569-008-12 (TRV380/TRV480: E)



CD-ROM  
 (SPVD-012 2005) (USB Driver)  
 (Picture Package Ver.1.5) (1)  
 2-515-350-01

## Other accessories

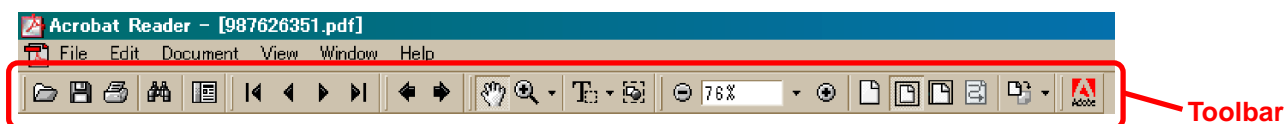
2-515-263-11	MANUAL, INSTRUCTION (ENGLISH) (TRV480E: AEP, UK, E, AUS)
2-515-263-21	MANUAL, INSTRUCTION (FRENCH) (TRV480E: AEP, E)
2-515-263-31	MANUAL, INSTRUCTION (SPANISH, PORTUGUESE) (TRV480E: AEP)
2-515-263-41	MANUAL, INSTRUCTION (ITALIAN, GREEK) (TRV480E: AEP)
2-515-263-51	MANUAL, INSTRUCTION (GERMAN, DUTCH) (TRV480E: AEP)
2-515-263-61	MANUAL, INSTRUCTION (SWEDISH, RUSSIAN) (TRV480E: NE)
2-515-263-71	MANUAL, INSTRUCTION (DANISH, FINNISH) (TRV480E: NE)
2-515-263-81	MANUAL, INSTRUCTION (ARABIC, PERSIAN) (TRV480E: E)
2-515-263-91	MANUAL, INSTRUCTION (SIMPLIFIED CHINESE) (TRV480E: E)
2-515-265-11	MANUAL, INSTRUCTION (THAI) (TRV480E: E)
2-515-268-11	MANUAL, INSTRUCTION (ENGLISH) (TRV480: US, CND, E)
2-515-268-21	MANUAL, INSTRUCTION (FRENCH) (TRV480: CND)
2-515-268-31	MANUAL, INSTRUCTION (SPANISH) (TRV380: E)
2-515-268-41	MANUAL, INSTRUCTION (PORTUGUESE) (TRV380: E)

The components identified by mark ▲ or dotted line with mark ▲ are critical for safety. Replace only with part number specified.


Les composants identifiés par une marque ▲ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.




## [Description of main button functions on toolbar of the Adobe Acrobat Reader Ver5.0 (for Windows)]





### Printing a text

1. Click the Print button .
2. Specify a printer, print range, number of copies, and other options, and then click [OK].

#### Application of printing:

To set a range to be printed within a page, select the graphic selection tool  and drag on the page to enclose a range to be printed, and then click the Print button.


### Reversing the screens displayed once

- To reverse the previous screens (operation) one by one, click the .
- To advance the reversed screens (operation) one by one, click the .

#### Application to the Service Manual:

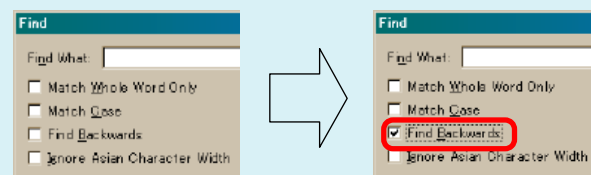
This function allows you to go and back between circuit diagram and printed circuit board diagram, and accordingly it will be convenient for the voltage check.

### Finding a text

1. Click the Find button .
2. Enter a character string to be found into a text box, and click the [Find]. (Specify the find options as necessary)

#### Application to the Service Manual:

To execute "find" from current page toward the previous pages, select the check box "Find Backwards" and then click the "Find".








3. Open the find dialog box again, and click the [Find Again] and you can find the matched character strings displayed next. (Character strings entered previously are displayed as they are in the text box.)

#### Application to the Service Manual:


The parts on the drawing pages (block diagrams, circuit diagrams, printed circuit boards) and parts list pages in a text can be found using this find function. For example, find a Ref. No. of IC on the block diagram, and click the [Find Again] continuously, so that you can move to the Ref. No. of IC on the circuit diagram or printed circuit board diagram successively.


**Note:** The find function may not be applied to the Service Manual depending on the date of issue.

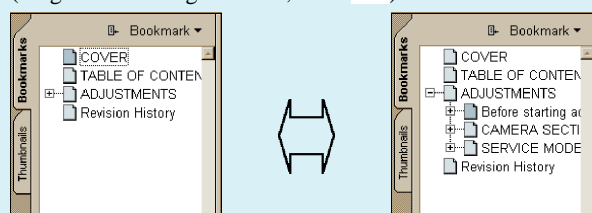
### Moving with link

1. Select either palm tool , zoom tool , text selection tool , or graphic selection tool .
2. Place the pointer in the position in a text where the link exists (such as a button on cover and the table of contents page, or blue characters on the removal flowchart page or drawing page), and the pointer will change to the forefinger form .
3. Then, click the link. (You will go to the link destination.)

### Moving with bookmark:



Click an item (text) on the bookmark pallet. and you can move to the link destination. Also, clicking  can display the hidden items.

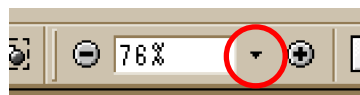
(To go back to original state, click )




### Zooming or rotating the screen display

#### "Zoom in/out"

- Click the triangle button in the zoom control box to select the display magnification. Or, you may click  or  for zooming in or out.







#### "Rotate"

- Click rotate tool , and the page then rotates 90 degrees each.

#### Application to the Service Manual:

The printed circuit board diagram you see now can be changed to the same direction as the set.

### Switching a page

- To move to the first page, click the .
- To move to the last page, click the .
- To move to the previous page, click the .
- To move to the next page, click the .

## Revision History

Ver.	Date	History	Contents	S.M. Rev. issued
1.0	2004.11	Official Release	—	—

# DCR-TRV380/TRV480/TRV480E

RMT-831

Ver 1.0 2004. 11

Revision History

## SECTION 6 ADJUSTMENTS

ADJ

### Link

#### • Before Starting Adjustments

- Adjusting Items when Replacing Main Parts and Boards

#### • CAMERA SECTION ADJUSTMENTS

- PREPARATIONS BEFORE ADJUSTMENTS
- INITIALIZATION OF 8, A, B, C, D, E, F, 18, 1B, 1C, 1F PAGE DATA
- CAMERA SYSTEM ADJUSTMENTS
- LCD SYSTEM ADJUSTMENTS

#### • MECHANISM SECTION ADJUSTMENTS

- ADJUSTMENT REMOTE COMMANDER
- Hi8/STANDARD8 MODE
- DIGITAL8 MODE

#### • VIDEO SECTION ADJUSTMENTS

- PREPARATIONS BEFORE ADJUSTMENTS
- SYSTEM CONTROL SYSTEM ADJUSTMENTS
- SERVO AND RF SYSTEM ADJUSTMENTS
- VIDEO SYSTEM ADJUSTMENTS
- AUDIO SYSTEM ADJUSTMENTS

#### • SERVICE MODE

- ADJUSTMENT REMOTE COMMANDER
- DATA PROCESS
- SERVICE MODE

### Contents of LEVEL 2 and LEVEL 3 Service Manual

CONTENTS	LEVEL 2	LEVEL 3
1. SERVICE NOTE	○	×
2. DISASSEMBLY	○	×
3. BLOCK DIAGRAMS	OVERALL POWER	×
4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS	CD-472, PD-205, SI-041 BOARD, FP-792, FP-228, FP-299, FP-300, FP-301, FP-302, FP-802 FLEXIBLE BOARD CONTROL KEY BLOCK (SS-5100), (PR-5100) (SB-9000), (CF-5100)	VC-345 BOARD
5. REPAIR PARTS LIST	EXPLODED VIEWS	×
	ELECTRICAL PARTS	○ (VC-345 BOARD)

SONY®

## TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>	<u>Section</u>	<u>Title</u>	<u>Page</u>
<b>6. ADJUSTMENTS</b>					
1.	Before Starting Adjustments .....	6-1	1.	Preparations for Adjustment .....	6-30
1-1.	Adjusting Items when Replacing		2-3.	Digital8 Mode .....	6-31
	Main Parts and Boards .....	6-2	2-3-1.	How to Enter Record Mode without Cassette .....	6-31
6-1.	Camera Section Adjustments .....	6-4	2-3-2.	How to Enter Playback Mode without Cassette .....	6-31
1-1.	Preparations before Adjustments (Camera Section) .....	6-4	2-3-3.	Overall Tape Path Check .....	6-31
1-1-1.	List of Service Tools .....	6-4	1.	Recording of the Tape Path Check Signal .....	6-31
1-1-2.	Preparations .....	6-5	2.	Tape Path Check .....	6-31
1-1-3.	Precaution .....	6-6	2-3-4.	Tape Path Adjustment (DCR-TRV380) .....	6-32
1.	Setting the Switch .....	6-6	1.	Preparations for Adjustment .....	6-32
2.	Order of Adjustments .....	6-6	2.	Tape Path Adjustment .....	6-33
3.	Subjects .....	6-6	3.	No.7 Guide (TG7) Adjustment .....	6-34
1-2.	Initialization of 8, A, B, C, D, E, F, 18,		4.	CUE, REV Waveforms Check .....	6-34
	1B, 1C, 1F Page Data .....	6-7	2-3-5.	Checks after Adjustments .....	6-34
1-2-1.	Initialization of A, B, D, 1B Page Data .....	6-7	1.	Waveform Build-up Check .....	6-34
1.	Initializing the A, B, D, 1B Page Data .....	6-7	2.	Tape Path Check .....	6-34
2.	Modification of A, B, D, 1B Page Data .....	6-7	6-3.	Video Section Adjustments .....	6-35
3.	A Page Table .....	6-8	3-1.	Preparations before Adjustments .....	6-35
4.	B Page Table .....	6-8	3-1-1.	Equipment to Required .....	6-35
5.	D Page Table .....	6-8	3-1-2.	Precautions on Adjusting .....	6-36
6.	1B Page Table .....	6-8	3-1-3.	Adjusting Connectors .....	6-36
1-2-2.	Initialization of 8, C, 18, 1C Page Data .....	6-9	3-1-4.	Connecting the Equipment .....	6-36
1.	Initializing the 8, C, 18, 1C Page Data .....	6-9	3-1-5.	Alignment Tape .....	6-37
2.	Modification of 8, C, 18, 1C Page Data .....	6-9	3-1-6.	Input/output Level and Impedance .....	6-38
3.	8 Page Table .....	6-10	3-2.	System Control System Adjustments .....	6-39
4.	C Page Table .....	6-11	1.	Initialization of 8, A, B, C, D, E, F, 18,	
5.	18 Page Table .....	6-12		1B, 1C, 1F Page Data .....	6-39
6.	1C Page Table .....	6-13	2.	Touch Panel Adjustment .....	6-39
1-2-3.	Initialization of E, F, 1F Page Data .....	6-14	3.	Node Unique ID No. Input .....	6-40
1.	Initializing the E, F, 1F Page Data .....	6-14	3-1.	Input of Company ID .....	6-40
2.	Modification of E, F, 1F Page Data .....	6-14	3-2.	Input of Serial No. ....	6-40
3.	E Page Table .....	6-14	3-3.	Servo and RF System Adjustments .....	6-42
4.	F Page Table .....	6-15	1.	REEL FG Adjustment (VC-345 Board) .....	6-42
5.	1F Page Table .....	6-15	2.	CAP FG Duty Adjustment (VC-345 Board)	
1-3.	Camera System Adjustments .....	6-16		(DCR-TRV480/TRV480E) .....	6-42
1.	HALL Adjustment .....	6-16	3.	CAP FG Duty Adjustment (VC-345 Board)	
2.	Flange Back Adjustment			(DCR-TRV380) .....	6-43
	(Using the minipattern box or		4.	Digital8 Switching Position Adjustment	
	flange back adjustment jig) .....	6-16		(VC-345 Board) .....	6-43
3.	Flange Back Adjustment		5.	SD Error Rate Check (LP) (VC-345 Board) .....	6-44
	(Using the flange back adjustment chart and		6.	Hi8/Standard8 Switching Position Adjustment	
	subject more than 500 m away) .....	6-18		(VC-345 Board)	
3-1.	Flange Back Adjustment (1) .....	6-18		(DCR-TRV480/TRV480E) .....	6-45
3-2.	Flange Back Adjustment (2) .....	6-18	3-4.	Video System Adjustments .....	6-46
4.	Flange Back Check .....	6-19	1.	27 MHz Origin Oscillation Adjustment	
5.	Optical Axis Adjustment .....	6-20		(VC-345 Board) .....	6-46
6.	Picture Frame Setting .....	6-21	2.	Composite Video Out Level Adjustment	
7.	Color Reproduction Adjustment .....	6-22		(VC-345 Board) .....	6-47
8.	LV Standard Data Input .....	6-23	3.	Hi8/Standard8 Y/C Output Level Setting	
9.	Auto White Balance Standard Data Input .....	6-23		(VC-345 Board)	
10.	Auto White Balance Adjustment .....	6-24		(DCR-TRV480/TRV480E) .....	6-48
11.	Auto White Balance Check .....	6-25	4.	Hi8/Standard8 AFC f <sub>0</sub> Adjustment (VC-345 Board)	
12.	Angular Velocity Sensor Output Check and			(DCR-TRV480/TRV480E) .....	6-48
	Steadyshot Check .....	6-26	3-5.	Audio System Adjustments .....	6-49
13.	CCD Defect Check .....	6-26	1.	Hi8/Standard8 AFM BPF f <sub>0</sub> Adjustment	
1-4.	LCD System Adjustments .....	6-27		(VC-345 Board)	
1.	LCD Level Adjustment (PD-205 Board) .....	6-27		(DCR-TRV480/TRV480E) .....	6-49
2.	LCD V-COM Adjustment (PD-205 Board) .....	6-28	2.	Hi8/Standard8 AFM 1.5 MHz Deviation Adjustment	
3.	LCD White Balance Adjustment (PD-205 Board) .....	6-28		(VC-345 Board)	
6-2.	Mechanism Section Adjustments .....	6-29		(DCR-TRV480/TRV480E) .....	6-50
2-1.	Adjustment Remote Commander .....	6-29	3.	Hi8/Standard8 AFM 1.7 MHz Deviation Adjustment	
2-2.	Hi8/Standard8 Mode			(VC-345 Board)	
	(DCR-TRV480/TRV480E) .....	6-30		(DCR-TRV480/TRV480E) .....	6-50
2-2-1.	How to Enter Playback Mode without Cassette .....	6-30	4.	Digital8 Playback Level Check .....	6-50
2-2-2.	Tape Path Adjustment .....	6-30	6-4.	Service Mode .....	6-51
			4-1.	Adjustment Remote Commander .....	6-51
			1.	Using the Adjustment Remote Commander .....	6-51

<u>Section</u>	<u>Title</u>	<u>Page</u>
2.	Precautions Upon Using the Adjustment Remote Commander .....	6-51
4-2.	Data Process .....	6-52
4-3.	Service Mode .....	6-53
1.	Setting the Test Mode .....	6-53
2.	Emergence Memory Address .....	6-53
2-1.	C Page Emergence Memory Address .....	6-53
2-2.	EMG Code (Emergency Code) .....	6-54
2-3.	MSW Code .....	6-55
3.	Bit Value Discrimination .....	6-56
4.	Switch Check (1) .....	6-56
5.	Switch Check (2) .....	6-56
6.	Switch Check (3) .....	6-57
7.	LED, IR Light Check .....	6-57
8.	Video Light Check .....	6-58
9.	Record of Use Check .....	6-58
10.	Record of Self-diagnosis Check .....	6-59

\* The camera optical axis frame is shown on page 6-60.  
The camera color reproduction frame is shown on page 6-61.

## SECTION 6 ADJUSTMENTS

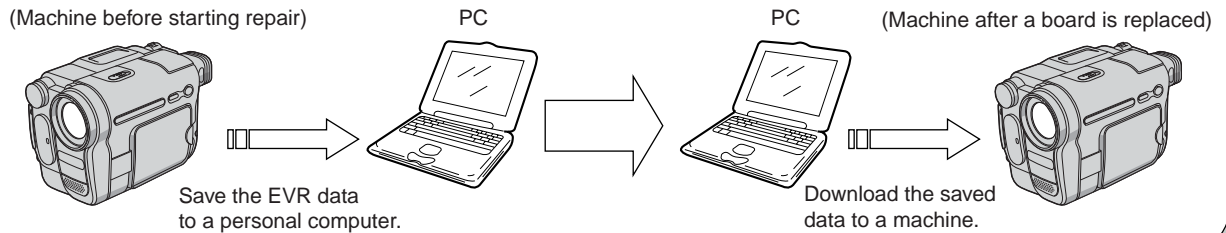
### 1. Before Starting Adjustments

#### EVR Data Re-writing Procedure When Replacing Board

The data that is stored in the repair board, is not necessarily correct.  
Perform either procedure 1 or procedure 2 or procedure 3 when replacing board.

##### Procedure 1

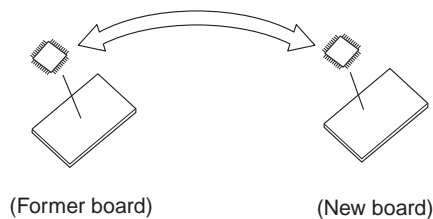
Save the EVR data of the machine in which a board is going to be replaced. Download the saved data after a board is replaced.



##### Procedure 2

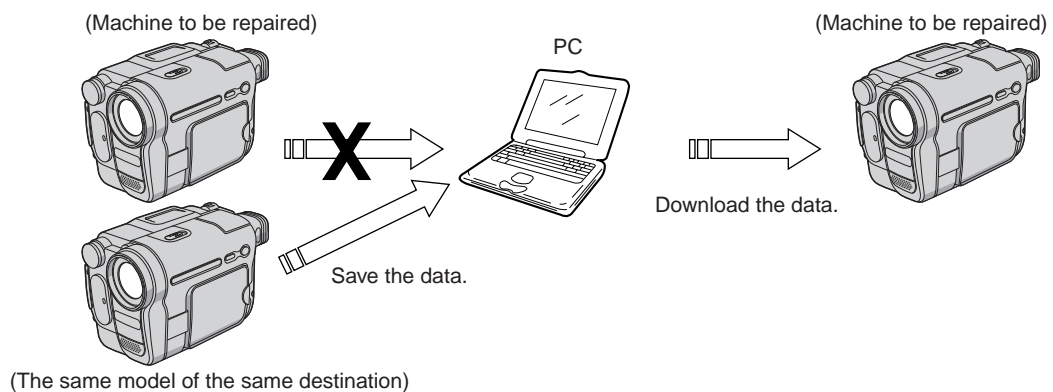
Remove the EEPROM from the board of the machine that is going to be repaired. Install the removed EEPROM to the replaced board.

Remove the EEPROM and install it.



##### Procedure 3

When the data cannot be saved due to defective EEPROM, or when the EEPROM cannot be removed or installed, save the data from the same model of the same destination, and download it.



After the EVR data is saved and downloaded, check the respective items of the EVR data.  
(Refer to page 6-3 for the items to be checked)

## 1-1. Adjusting Items when Replacing Main Parts and Boards

### • Adjusting items when replacing main parts

When replacing main parts, adjust the items indicated by ● in the following table.

Adjustment Section	Adjustment	Replaced part																	
		Block replacement						Mounted part replacement											
		Lens device	Video light (Note 2)	LCD block LCD901 (LCD panel)	LCD block ND901 (Fluorescent tube)	Mechanism deck (Note 1)	Mechanism deck M901 (Drum assembly) (Note 1)	Mechanism deck M902 (Capstan motor)	CD-472 board IC951 (CCD imager)	SI-041 board SE751/752 (YAW, PITCH sensor)	VC-345 board IC1501, X1501 (Timing generator)	VC-345 board IC1502 (S/H, AGC, A/D CONV.)	VC-345 board IC8001 (Video/audio DSP, D/A Converter, Lens control)	VC-345 board IC2201 (Hi8/Standard8 VTR process)	VC-345 board IC6001 (DV signal process)	VC-345 board IC3701 (Video in/out)	VC-345 board IC1601 (EVR)	VC-345 board IC5401 (Audio process)	PD-205 board IC6001 (LCD driver)
Initialization of 8, A, B, C, D, E, F, 18, 1B, 1C, 1F page data	Initializing of A, D page data																		
	Initializing of B, 1B page data																		
	Initializing of 8, C, 18, 1C page data																		
	Initializing of E, F, 1F page data																		
Camera	HALL adj.	●																	
	Flange back adj.	●						●											
	Optical axis adj.	●																	
	Color reproduction adj.							●			●								
	LV standard data input							●			●								
	AWB standard data input										●								
	Auto white balance adj.							●			●								
	Angular velocity sensor output check and steadysht check								●										
LCD	LCD level adj.																		●
	LCD V-COM adj.			●															●
	LCD White balance adj.			●	●														●
System control	Touch panel adj.			●	●														
	Node unique ID No. input																		
Servo, RF	REEL FG adj.					●													
	CAP FG duty adj.					●		●											
	Digital8 switching position adj.					●	●												
	SD error rate check (LP)					●	●												
	Hi8/Standard8 switching position adj. (Note 3)					●	●								●				
Video	27 MHz origin osillation adj.									●								●	
	Composite Video Out level adj.												●			●			
	Hi8/Standard8 Y/C output level setting (Note 3)													●					
	Hi8/Standard8 AFC f0 adj. (Note 3)													●					
Audio	(Note 3)																		●
	Hi8/Standard8 AFM 1.5 MHz deviation adj. (Note 3)																	●	
	Hi8/Standard8 AFM 1.7 MHz deviation adj. (Note 3)																	●	
Mechanism	Tape path adj.					●	●	●											

Table 6-1-1 (1)

**Note 1:** When replacing the drum assy or mechanism deck, reset the data of page: 7, address: A7 to A9.  
(Refer to “Record of Use Check” of “6-4. SERVICE MODE”)

**Note 2:** When replacing the video light, reset the data of page: 7, address: CE and CF.  
(Refer to “Record of Use Check” of “6-4. SERVICE MODE”)

**Note 3:** DCR-TRV480/TRV480E only

DCR-TRV380/TRV480/TRV480E

• **Adjusting items when replacing a board or EEPROM**

When replacing a board or EEPROM, adjust the items indicated by ● in the following table.

Adjustment Section	Adjustment	Replaced part			
		PD-205 board (COMPLETE)	VC-345 board (COMPLETE)	VC-345 board IC5702 (EEPROM)	VC-345 board IC4502 (EEPROM)
Initialization of 8, A, B, C, D, E, F, 18, 1B, 1C, 1F page data	Initializing of A, D page data		●	●	
	Initializing of B, 1B page data		●	●	
	Initializing of 8, C, 18, 1C page data		●		●
	Initializing of E, F, 1F page data		●		●
Camera	HALL adj.		●		●
	Flange back adj.		●		●
	Optical axis adj.		●		●
	Color reproduction adj.		●		●
	LV standard data input		●		●
	AWB standard data input		●		●
	Auto white balance adj.		●		●
LCD	Angular velocity sensor output check and steadysht check		●		●
	LCD level adj.	●	●		●
	LCD V-COM adj.	●	●		●
System control	LCD White balance adj.	●	●		●
	Touch panel adj.		●		
Servo, RF	Node unique ID No. input		●		●
	REEL FG adj.		●		●
	CAP FG duty adj.		●		●
	Digital8 switching position adj.		●		●
	SD error rate check (LP)		●		●
Video	Hi8/Standard8 switching position adj. (Note 3)		●		●
	27 MHz origin osillation adj.		●		●
	Composite Video Out level adj.		●		●
	Hi8/Standard8 Y/C output level setting (Note 3)		●		●
Audio	Hi8/Standard8 AFC f <sub>0</sub> adj. (Note 3)		●		●
	Hi8/Standard8 AFM BPF f <sub>0</sub> adj. (Note 3)		●		●
	Hi8/Standard8 AFM 1.5 MHz deviation adj. (Note 3)		●		●
Mechanism	Hi8/Standard8 AFM 1.7 MHz deviation adj. (Note 3)		●		●
	Tape path adj.				

**Table 6-1-1 (2)**


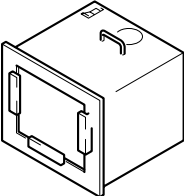
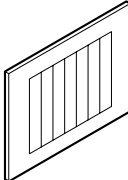
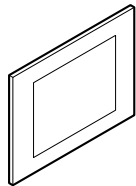
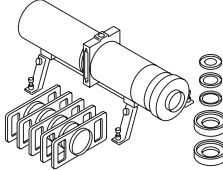
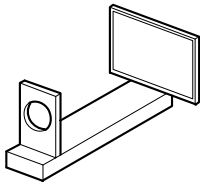
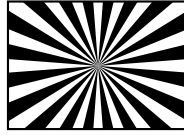
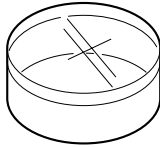
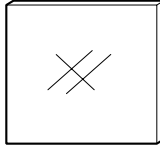
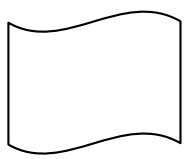
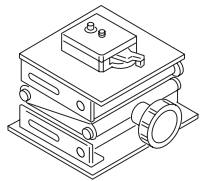
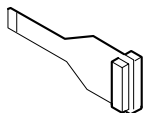
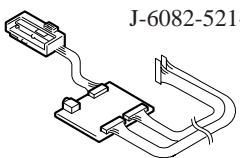


## 6-1. CAMERA SECTION ADJUSTMENTS

### 1-1. PREPARATIONS BEFORE ADJUSTMENTS (CAMERA SECTION)

#### 1-1-1. List of Service Tools

- Oscilloscope
- Regulated power supply
- Color monitor
- Digital voltmeter
- Vectorscope
- Frequency counter

<p>J-1</p>  <p>Adjustment remote commander J-6082-053-B</p>	<p>J-2</p>  <p>Pattern box PTB-450 J-6082-200-A or Small pattern box PTB-1450 J-6082-557-A</p>	<p>J-3</p>  <p>Color bar chart  For PTB-450: J-6020-250-A  For PTB-1450: J-6082-559-A</p>
<p>J-4</p>  <p>Clear chart  For PTB-450: J-6080-621-A  For PTB-1450: J-6082-560-A</p>	<p>J-5</p>  <p>Minipattern box J-6082-353-B</p>	<p>J-6</p>  <p>Flange back adjustment jig J-6082-563-A</p>
<p>J-7</p>  <p>Siemens star chart J-6080-875-A</p>	<p>J-8</p>  <p>Filter for color temperature correction (C14) J-6080-058-A</p>	<p>J-9</p>  <p>ND filter 1.0 J-6080-808-A ND filter 0.4 J-6080-806-A ND filter 0.1 J-6080-807-A</p>
<p>J-10</p>  <p>Back ground paper J-2501-130-A</p>	<p>J-11</p>  <p>Camera table J-6082-384-A</p>	<p>J-12</p>  <p>CPC jig connector J-6082-539-A</p>
<p>J-13</p>  <p>I/F unit for LANC control J-6082-521-A</p>		

**Fig. 6-1-1**

## 1-1-2. Preparations

**Note:** Before perform the adjustment, check that the data of page: 0, address: 10 is "00".  
If not, select page: 0, address: 10, and set data "00".

- 1) Connect the equipment for adjustments according to Fig. 6-1-3.
- 2) Connect the adjustment remote commander to VC-345 board CN1011 via I/F unit for LANC control (J-6082-521-A) and CPC jig connector (J-6082-539-A). (Fig. 6-1-3)

To operate the adjustment remote commander, connect the AC power adaptor to the DC IN jack of I/F unit for LANC control, or connect the L series Info-LITHIUM battery to the battery terminal of I/F unit for LANC control.

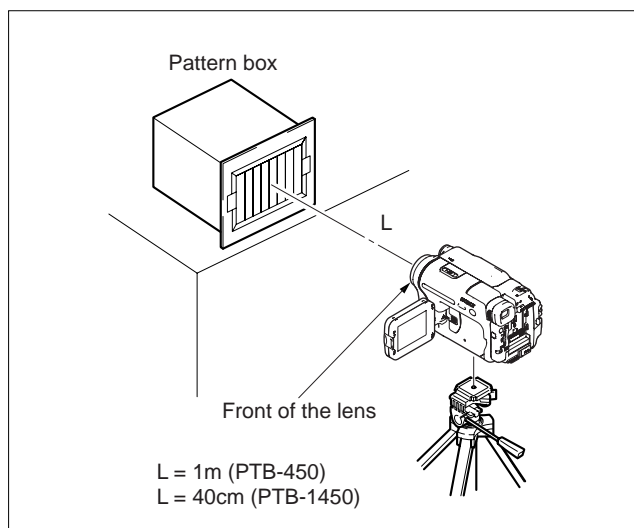


Fig. 6-1-2

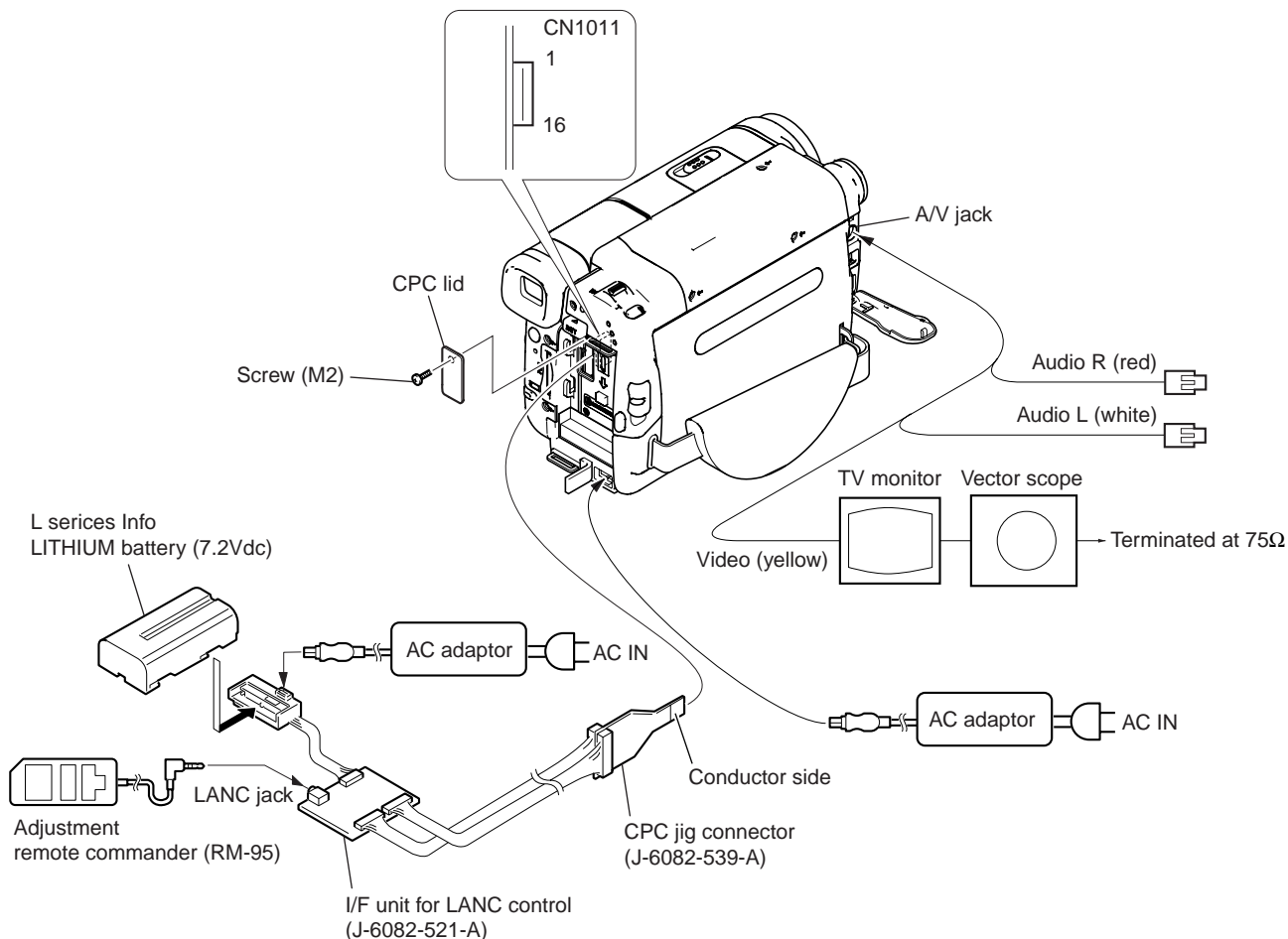


Fig. 6-1-3

### 1-1-3. Precaution

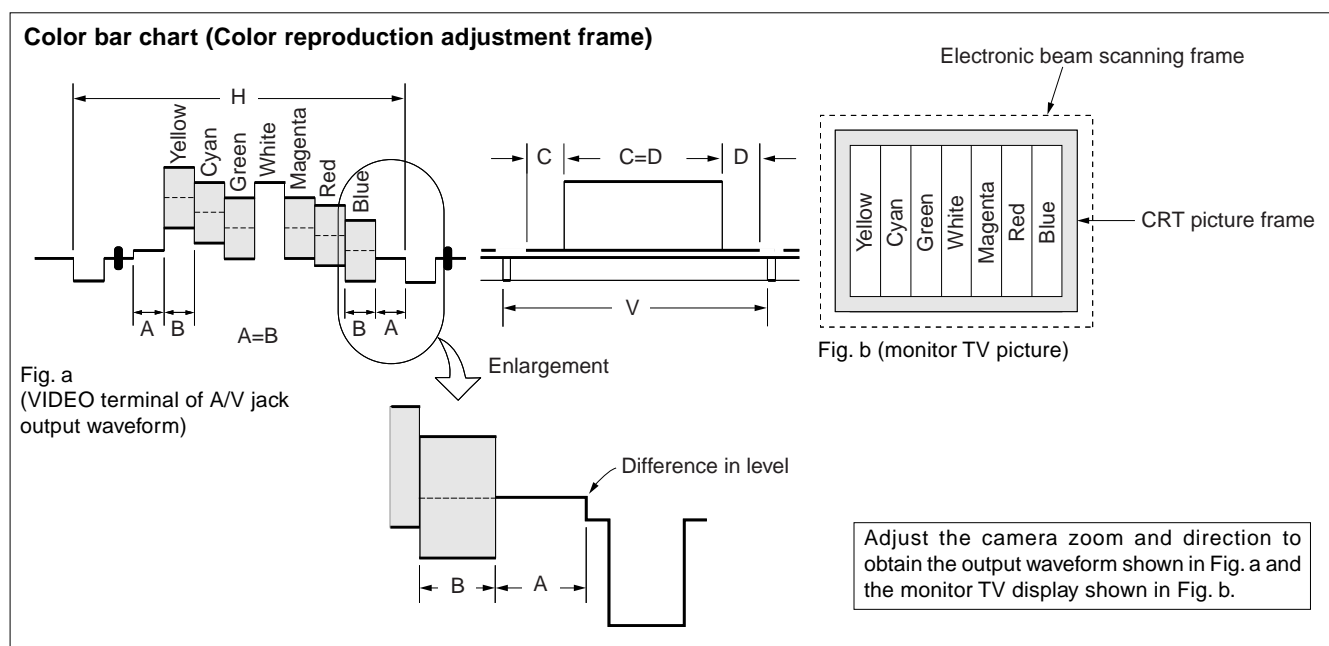
#### 1. Setting the Switch

Unless otherwise specified, set the switches as follows and perform adjustments without loading cassette.

- |   |        |                                       |           |
|---|--------|---------------------------------------|-----------|
| 1. POWER switch (SS-5100 block) .....       | CAMERA | 8. D. EFFECT (MENU setting) .....     | OFF       |
| 2. FOCUS (MENU setting) .....               | MANUAL | 9. DIGITAL ZOOM (MENU setting) .....  | OFF       |
| 3. BACK LIGHT (CF-5100 block) .....         | OFF    | 10. DEMO MODE (MENU setting) .....    | OFF       |
| 4. PROGRAM AE (MENU setting) .....          | AUTO   | 11. 16 : 9 WIDE (MENU setting) .....  | OFF       |
| 5. NIGHTSHOT PLUS switch (Lens block) ..... | OFF    | 12. COLOR SLOW S (MENU setting) ..... | OFF       |
| 6. EXPOSURE (MENU setting) .....            | AUTO   | 13. DISPLAY (MENU setting) .....      | LCD PANEL |
| 7. PICT. EFFECT (MENU setting) .....        | OFF    |                                       |           |

#### 2. Order of Adjustments

Basically carry out adjustments in the order given.

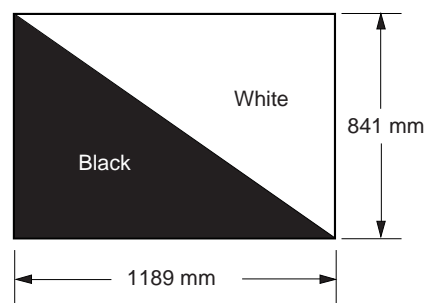


**Fig. 6-1-4**

#### 3. Subjects

- 1) Color bar chart (Color reproduction adjustment frame)  
When performing adjustments using the color bar chart, adjust the picture frame as shown in Fig. 6-1-4. (Color reproduction adjustment frame)
- 2) Clear chart (Color reproduction adjustment frame)  
Remove the color bar chart from the pattern box and insert a clear chart in its place. (Do not perform zoom operations during this time)
- 3) Chart for flange back adjustment  
Join together a piece of white A0 size paper (1189mm × 841 mm) and a piece of black paper to make the chart shown in Fig. 6-1-5.

**Note:** Use a non-reflecting and non-glazing vellum paper. The size must be A0 or larger and the joint between the white and black paper must not have any undulations.



**Fig. 6-1-5**

## 1-2. INITIALIZATION OF 8, A, B, C, D, E, F, 18, 1B, 1C, 1F PAGE DATA

**Note:** If reading/writing data on pages 18, 1B, 1C, 1F, set data: 01 to page: 0, address: 10, and then select pages 8, B, C, F. By this data setting, the pages 18, 1B, 1C, 1F can be selected.

After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

### 1-2-1. Initialization of A, B, D, 1B Page Data

**Note:** Check that the data of page: 0, address: 10 is "00".

#### 1. Initializing the A, B, D, 1B Page Data

**Note 1:** If "Initialization of Pages A, B, D, 1B" is executed, all data on pages A, B, D, 1B are initialized. (Only an individual page cannot be initialized)

**Note 2:** If the A, B, D, 1B page data has been initialized, the following adjustments need to be performed again.

1) Modification of A, B, D, 1B page data

**Note 3:** NTSC model: DCR-TRV380/TRV480

PAL model: DCR-TRV480E

Adjustment Page	A
Adjustment Address	10 to FF
Adjustment Page	B
Adjustment Address	00 to FF
Adjustment Page	D
Adjustment Address	10 to FF
Adjustment Page	1B
Adjustment Address	00 to FF

#### Initializing method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	00	
3	7	04		Set the following data 00: NTSC model 01: PAL model
4	7	01	28	
5	7	00	01	Press PAUSE button.
6	7	02		Check the data changes to "01".
7				Perform "Modification of A, B, D, 1B Page Data"

## 2. Modification of A, B, D, 1B Page Data

If the A, B, D, 1B page data has been initialized, change the data of the "Fixed data-2" address shown in the following table by manual input.

#### Modifying method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.

2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.

**Note 1:** If copy the data built in the different model, the camcorder may not operate.

3) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.

4) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

#### Processing after completing modification A, B, D, 1B page data:

Order	Page	Address	Data	Procedure
1	0	10	00	
2	2	00	29	
3	2	01	29	Press PAUSE button.

**Note 2:** If the following symptoms occur after completing of the "Modification A, B, D, 1B page data", check that the data of the "Fixed data-2" addresses of A, B, D, 1B page are same as those of the same model of the same destination.

1) The power is shut off so that unit cannot operate.

### 3. A Page Table

**Note 1:** Check that the data of page: 0, address: 10 is “00”.

**Note 2:** Fixed data-1: Initialized data. (Refer to “1. Initializing the A, B, D, 1B Page Data”)

Fixed data-2: Modified data. (Refer to “2. Modification of A, B, D, 1B Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
10	00	00	Test mode
11 to 1B	Fixed data-1 (Initialized data)		
1C	Fixed data-2		
1D to 30	Fixed data-1 (Initialized data)		
31	Fixed data-2		
32 to 50	Fixed data-1 (Initialized data)		
51	Fixed data-2		
52			
53			
54			
55 to 8F	Fixed data-1 (Initialized data)		
90	DB	D2	Touch panel adj.
91	25	1D	
92	EA	C6	
93	1A	24	
94 to FF	Fixed data-1 (Initialized data)		

### 4. B Page Table

**Note 1:** Check that the data of page: 0, address: 10 is “00”.

**Note 2:** Fixed data-1: Initialized data. (Refer to “1. Initializing the A, B, D, 1B Page Data”)

Fixed data-2: Modified data. (Refer to “2. Modification of A, B, D, 1B Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00 to FF	Fixed data-1 (Initialized data)		

### 5. D Page Table

**Note 1:** Check that the data of page: 0, address: 10 is “00”.

**Note 2:** Fixed data-1: Initialized data. (Refer to “1. Initializing the A, B, D, 1B Page Data”)

Fixed data-2: Modified data. (Refer to “2. Modification of A, B, D, 1B Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
10 to 13	Fixed data-1 (Initialized data)		
14	Fixed data-2		
15	Fixed data-1 (Initialized data)		
16	Fixed data-2		
17 to 19	Fixed data-1 (Initialized data)		
1A	Fixed data-2		
1B to 27	Fixed data-1 (Initialized data)		
28	Fixed data-2		
29			
2A			
2B			
2C			
2D			
2E			
2F			
30 to 32	Fixed data-1 (Initialized data)		
33	Fixed data-2		
34 to 44	Fixed data-1 (Initialized data)		
45	Fixed data-2		
45 to 56	Fixed data-1 (Initialized data)		
57	Fixed data-2		
58 to FF	Fixed data-1 (Initialized data)		

### 6. 1B Page Table

**Note 1:** If reading/writing data on pages 1B, set data: 01 to page: 0, address: 10, and then select pages B. By this data setting, the pages 1B can be selected.

After the data reading/writing finished, return the data on page: 0, address: 10 to “00”.

**Note 2:** Fixed data-1: Initialized data. (Refer to “1. Initializing the A, B, D, 1B Page Data”)

Fixed data-2: Modified data. (Refer to “2. Modification of A, B, D, 1B Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00 to FF	Fixed data-1 (Initialized data)		

### 1-2-2. Initialization of 8, C, 18, 1C Page Data

**Note:** If reading/writing data on pages 18, 1C, set data: 01 to page: 0, address: 10, and then select pages 8, C. By this data setting, the pages 18, 1C can be selected.

After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

#### 1. Initializing the 8, C, 18, 1C Page Data

**Note 1:** If "Initialization of Pages 8, C, 18, 1C" is executed, all data on pages 8, C, 18, 1C are initialized. (Only an individual page cannot be initialized)

**Note 2:** If the 8, C, 18, 1C page data has been initialized, the following adjustments need to be performed again.

- 1) Modification of 8, C, 18, 1C page data
- 2) Electronic viewfinder system adjustments
- 3) LCD system adjustments
- 4) Node unique ID No. input
- 5) Servo, RF system adjustments
- 6) "Composite Video Out Level Adjustment" of the video system adjustments
- 7) Audio system adjustments

Adjustment Page	8
Adjustment Address	00 to FF
Adjustment Page	C
Adjustment Address	10 to FF
Adjustment Page	18
Adjustment Address	00 to FF
Adjustment Page	1C
Adjustment Address	00 to FF

#### Initializing method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	00	
3	3	81	10	
4	3	80	0C	Press PAUSE button.
5	3	80		Check the data changes to "1C".
6				Perform "Modification of 8, C, 18, 1C Page Data"

### 2. Modification of 8, C, 18, 1C Page Data

If the 8, C, 18, 1C page data has been initialized, change the data of the "Fixed data-2" address shown in the following table by manual input.

#### Modifying method:

- 1) Before changing the data, select page: 0, address: 01, and set data: 01.
- 2) If modification of data on pages 8, C, set data: 00 to page: 0, address: 10, and then select pages 8, C.
- 3) If modification of data on pages 18, 1C, set data: 01 to page: 0, address: 10, and then select pages 8, C. After the modification of data finished, return the data on page: 0, address: 10 to "00".
- 4) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.  
**Note:** If copy the data built in the different model, the camcorder may not operate.
- 5) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
- 6) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

#### Processing after completing modification 8, C, 18, 1C page data:

Order	Page	Address	Data	Procedure
1	0	10	00	
2	2	00	29	
3	2	01	29	Press PAUSE button.

### 3. 8 Page Table

**Note 1:** Check that the data of page: 0, address: 10 is “00”.

**Note 2:** Fixed data-1: Initialized data. (Refer to “1. Initializing the 8, C, 18, 1C Page Data”)

Fixed data-2: Modified data. (Refer to “2. Modification of 8, C, 18, 1C Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00 to 29			Fixed data-1 (Initialized data)
2A			Fixed data-2
2B to 43			Fixed data-1 (Initialized data)
44			Fixed data-2
45 to 79			Fixed data-1 (Initialized data)
7A			Fixed data-2
7B to AB			Fixed data-1 (Initialized data)
AC			Fixed data-2
AD to BD			Fixed data-1 (Initialized data)
BE			Fixed data-2
BF to C2			Fixed data-1 (Initialized data)
C3			Fixed data-2
C4			
C5			
C6, C7			Fixed data-1 (Initialized data)
C8			Fixed data-2
C9			
CA			
CB			
CC			Fixed data-1 (Initialized data)
CD			Fixed data-2
CE to D5			Fixed data-1 (Initialized data)
D6			Fixed data-2
D7			
D8 to FF			Fixed data-1 (Initialized data)

#### 4. C Page Table

**Note 1:** Check that the data of page: 0, address: 10 is “00”.

**Note 2:** Fixed data-1: Initialized data. (Refer to “1. Initializing the 8, C, 18, 1C Page Data”)

Fixed data-2: Modified data. (Refer to “2. Modification of 8, C, 18, 1C Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
10	EE	EE	Digital8 switching position adj.
11	00	00	
12	00	00	
13	00	00	
14, 15	Fixed data-1 (Initialized data)		
16	E0	E0	CAP FG duty adj.
17	E0	E0	REEL FG adj.
18 to 24	Fixed data-1 (Initialized data)		
25	80	80	Composite video out level adj.
26	70	70	
27	50	50	
28 to 2E	Fixed data-1 (Initialized data)		
2F	0E	0E	REEL FG adj.
30, 31	Fixed data-1 (Initialized data)		
32	0A	0A	Hi8/Standard switching position adj.
33	00	00	
34	30	30	Hi8/Standard8 AFC f <sub>0</sub> adj.
35	A0	A0	Hi8/Standard8 Y/C output level setting
36	AA	AA	
37	Fixed data-1 (Initialized data)		
38	A6	A6	Hi8/Standard8 AFM 1.5 MHz deviation adj.
39	94	94	Hi8/Standard8 AFM 1.7 MHz deviation adj.
3A	80	80	Hi8/Standard8 AFM BPF f <sub>0</sub> adj.
3B to 4E	Fixed data-1 (Initialized data)		
4F	Fixed data-2		
50	85	85	LCD level adj. (VCO adj.)
51	8F	8F	
52	90	90	LCD V-COM adj.
53	A2	A2	LCD level adj. (RGB AMP adj.)
54, 55	Fixed data-1 (Initialized data)		
56	7A	7A	LCD White balance adj.
57	5F	5F	
58	2E	2E	LCD level adj. (Contrast adj.)
59	Fixed data-2		
5A			
5B	C0	C0	LCD level adj. (PSIG black adj.)
5C to 65	Fixed data-1 (Initialized data)		
66	Fixed data-2		
67 to 71	Fixed data-1 (Initialized data)		
72	Fixed data-2		
73, 74	Fixed data-1 (Initialized data)		
75	Fixed data-2		
76 to 9B	Fixed data-1 (Initialized data)		
9C	Fixed data-2		

Address	Initial value		Remark
	NTSC	PAL	
9D to AC	Fixed data-1 (Initialized data)		
AD	Fixed data-2		
AE to D2	Fixed data-1 (Initialized data)		
D3	Fixed data-2		
D4			
D5			
D6			
D7	Fixed data-1 (Initialized data)		
D8	Fixed data-2		
D9			
DA			
DB			
DC to DD	Fixed data-1 (Initialized data)		
DE	Fixed data-2		
DF			
E0	08	08	Node unique ID No. input
E1	00	00	
E2	46	46	
E3	01	01	
E4	02	02	
E5	00	00	
E6	00	00	
E7	00	00	
E8, E9	Fixed data-1 (Initialized data)		
EA	Fixed data-2		
EB to F3	Fixed data-1 (Initialized data)		
F4	00	00	Emergency memory
F5	00	00	
F6	00	00	
F7	00	00	
F8	00	00	
F9	00	00	
FA	00	00	
FB	00	00	
FC	00	00	
FD	00	00	
FE	00	00	
FF	00	00	



## 5. 18 Page Table

**Note 1:** If reading/writing data on page 18, set data: 01 to page: 0, address: 10, and then select page 8. By this data setting, the page 18 can be selected.

After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

**Note 2:** Fixed data-1: Initialized data. (Refer to "1. Initializing the 8, C, 18, 1C Page Data")

Fixed data-2: Modified data. (Refer to "2. Modification of 8, C, 18, 1C Page Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to 11			Fixed data-1 (Initialized data)
12	00	00	Test mode (Hi8/Standard8 mode)
13			Fixed data-2
14			
15			Fixed data-1 (Initialized data)
16			Fixed data-2
17 to 1B			Fixed data-1 (Initialized data)
1C			Fixed data-2
1D, 1E			Fixed data-1 (Initialized data)
1F			Fixed data-2
20			
21			Fixed data-1 (Initialized data)
22			Fixed data-2
23			
24			
25			
26			
27			Fixed data-1 (Initialized data)
28			Fixed data-2
29			
2A, 2B			Fixed data-1 (Initialized data)
2C			Fixed data-2
2D			
2E, 2F			Fixed data-1 (Initialized data)
30			Fixed data-2
31, 32			Fixed data-1 (Initialized data)
33			Fixed data-2
34			Fixed data-1 (Initialized data)
35			Fixed data-2
36			Fixed data-1 (Initialized data)
37			Fixed data-2
38 to 3A			Fixed data-1 (Initialized data)
3B			Fixed data-2
3C to 3E			Fixed data-1 (Initialized data)
3F			Fixed data-2
40 to 51			Fixed data-1 (Initialized data)
52			Fixed data-2
53			Fixed data-1 (Initialized data)
54			Fixed data-2
55			
56			

Address	Initial value		Remark
	NTSC	PAL	
57, 58			Fixed data-1 (Initialized data)
59			Fixed data-2
5A, 5B			Fixed data-1 (Initialized data)
5C			Fixed data-2
5D			
5E			
5F			Fixed data-1 (Initialized data)
60			Fixed data-2
61, 62			Fixed data-1 (Initialized data)
63			Fixed data-2
64 to 67			Fixed data-1 (Initialized data)
68			Fixed data-2
69 to 6D			Fixed data-1 (Initialized data)
6E			Fixed data-2
6F			
70 to 74			Fixed data-1 (Initialized data)
75			Fixed data-2
76			Fixed data-1 (Initialized data)
77			Fixed data-2
78			
79			Fixed data-1 (Initialized data)
7A			Fixed data-2
7B			
7C			
7D			Fixed data-1 (Initialized data)
7E			Fixed data-2
7F			Fixed data-1 (Initialized data)
80			Fixed data-2
81			
82			
83, 84			Fixed data-1 (Initialized data)
85			Fixed data-2
86			
87			Fixed data-1 (Initialized data)
88			Fixed data-2
89			Fixed data-1 (Initialized data)
8A			Fixed data-2
8B			
8C			
8D			
8E			
8F			
90			Fixed data-1 (Initialized data)
91			Fixed data-2
92			Fixed data-1 (Initialized data)
93			Fixed data-2
94			Fixed data-1 (Initialized data)
95			Fixed data-2
96			Fixed data-1 (Initialized data)

## 18 Page Table

Address	Initial value		Remark
	NTSC	PAL	
97			Fixed data-2
98 to 9D			Fixed data-1 (Initialized data)
9E			Fixed data-2
9F			
A0			
A1			
A2			
A3			
A4 to AF			Fixed data-1 (Initialized data)
B0			Fixed data-2
B1 to B6			Fixed data-1 (Initialized data)
B7			Fixed data-2
B8, B9			Fixed data-1 (Initialized data)
BA			Fixed data-2
BB to F0			Fixed data-1 (Initialized data)
E1			Fixed data-2
E2			
E2 to FF			Fixed data-1 (Initialized data)

## 6. 1C Page Table

**Note 1:** If reading/writing data on page 1C, set data: 01 to page: 0, address: 10, and then select page C. By this data setting, the page 1C can be selected.

After the data reading/writing finished, return the data on page: 0, address: 10 to “00”.

**Note 2:** Fixed data-1: Initialized data. (Refer to “1. Initializing the 8, C, 18, 1C Page Data”)

Fixed data-2: Modified data. (Refer to “2. Modification of 8, C, 18, 1C Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00 to 08			Fixed data-1 (Initialized data)
09	FF	FF	Test mode (Digital8 mode)
0A to 2E			Fixed data-1 (Initialized data)
2F			Fixed data-2
30 to B2			Fixed data-1 (Initialized data)
B3	00	00	SD error rate check (LP)
B4	00	00	
B5	00	00	
B6	00	00	
B7	00	00	
B8	80	80	
B9	00	00	
BA	00	00	
BB	00	00	
BC	00	00	
BD	00	00	
BE	00	00	
BF	00	00	
C0	00	00	
C1	00	00	
C2	00	00	
C3	80	80	
C4	00	00	
C5	00	00	
C6	00	00	
C7	00	00	
C8	00	00	
C9 to CF			Fixed data-1 (Initialized data)
D0			Fixed data-2
D1 to FF			Fixed data-1 (Initialized data)

### 1-2-3. Initialization of E, F, 1F Page Data

**Note:** If reading/writing data on page 1F, set data: 01 to page: 0, address: 10, and then select page F. By this data setting, the page 1F can be selected.

After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

#### 1. Initializing the E, F, 1F Page Data

**Note 1:** If "Initialization of Pages E, F, 1F" is executed, all data on pages E, F, 1F are initialized. (Only an individual page cannot be initialized)

**Note 2:** If the E, F, 1F page data has been initialized, the following adjustments need to be performed again.

- 1) Modification of E, F, 1F page data
- 2) "27 MHz Origin Oscillation Adjustment", "Hi8/Standard8 Y/C Output Level Setting" and "Hi8/Standard8 AFC fo Adjustment" of the video system adjustment.
- 3) Camera system adjustments

**Note 3:** NTSC model: DCR-TRV380/TRV480

PAL model: DCR-TRV480E

Adjustment Page	E
Adjustment Address	00 to FF
Adjustment Page	F
Adjustment Address	10 to FF
Adjustment Page	1F
Adjustment Address	00 to FF

#### Initializing method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	00	
3	6	01		Set the following data, and press PAUSE button. 2D: NTSC model 2F: PAL model
4	6	03	01	Press PAUSE button.
5	6	02		Check the data changes to "01".
6				Perform "Modification of E, F, 1F Page Data"

### 2. Modification of E, F, 1F Page Data

If the E, F, 1F page data has been initialized, change the data of the "Fixed data-2" address shown in the following table by manual input.

#### Modifying method:

- 1) Before changing the data, select page: 0, address: 01, and set data: 01.
- 2) If modification of data on pages E, F, set data: 00 to page: 0, address: 10, and then select pages E, F.
- 3) If modification of data on page 1F, set data: 01 to page: 0, address: 10, and then select page F. After the modification of data finished, return the data on page: 0, address: 10 to "00".
- 4) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.

**Note:** If copy the data built in the different model, the camcorder may not operate.

- 5) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
- 6) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

#### Processing after completing modification E, F, 1F page data:

Order	Page	Address	Data	Procedure
1	0	10	00	
2	2	00	29	
3	2	01	29	Press PAUSE button.

### 3. E Page Table

**Note 1:** Check that the data of page: 0, address: 10 is "00".

**Note 2:** Fixed data-1: Initialized data. (Refer to "1. Initializing the E, F, 1F Page Data")

Fixed data-2: Modified data. (Refer to "2. Modification of E, F, 1F Page Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to 0F			Fixed data-1 (Initialized data)
10			Fixed data-2
11 to 1D			Fixed data-1 (Initialized data)
1E			Fixed data-2
1F, 20			Fixed data-1 (Initialized data)
21			Fixed data-2
22 to 63			Fixed data-1 (Initialized data)
64			Fixed data-2
65 to B0			Fixed data-1 (Initialized data)
B1			Fixed data-2
B2			
B3			
B4 to E3			Fixed data-1 (Initialized data)
E4			Fixed data-2
E5 to FF			Fixed data-1 (Initialized data)

#### 4. F Page Table

**Note 1:** Check that the data of page: 0, address: 10 is “00”.

**Note 2:** Fixed data-1: Initialized data. (Refer to “1. Initializing the E, F, 1F Page Data”)

Fixed data-2: Modified data. (Refer to “2. Modification of E, F, 1F Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
10	80	80	27 MHz origin osillation adj.
11	Fixed data-1 (Initialized data)		
12	4A	4A	Hall adj.
13	56	56	
14	11	11	
15	20	20	
16	02	02	
17	E0	E0	
18, 19	Fixed data-1 (Initialized data)		
1A	00	00	LV standard data input
1B	60	60	
1C to 26	Fixed data-1 (Initialized data)		
27	Fixed data-2		
28, 29	Fixed data-1 (Initialized data)		
2A	1B	1B	Auto white balance standard data input
2B	00	00	
2C	07	07	
2D	00	00	
2E	0E	0E	Auto white balance adj.
2F	00	00	
30	0D	0D	
31	00	00	
32	Fixed data-1 (Initialized data)		
33	22	22	Color reproduction adj.
34	Fixed data-1 (Initialized data)		
35	27	24	Color reproduction adj.
36 to 39	Fixed data-1 (Initialized data)		
3A	00	00	Color reproduction adj.
3B	F1	EF	
3C, 3D	Fixed data-1 (Initialized data)		
3E	2A	2B	Auto white balance adj.
3F	C0	00	
40	59	59	
41	00	40	
42, 43	Fixed data-1 (Initialized data)		
44	28	28	Flange back adj.
45	EC	EC	
46	35	35	
47	8F	8F	
48	13	13	
49	B8	B8	
4A	00	00	
4B	00	00	
4C	00	00	

Address	Initial value		Remark
	NTSC	PAL	
4D	00	00	Flange back adj.
4E	2B	2B	
4F	19	19	
50	00	00	
51	32	32	
52	04	04	
53	00	00	
54	00	00	
55 to 57	Fixed data-1 (Initialized data)		
58	Fixed data-2		
59			
5A	FF	FF	Optical axis adj.
5B to 8D	Fixed data-1 (Initialized data)		
8E	Fixed data-2		
8F			
90			
91 to 96	Fixed data-1 (Initialized data)		
97	Fixed data-2		
98, 99	Fixed data-1 (Initialized data)		
9A	Fixed data-2		
9B to A3	Fixed data-1 (Initialized data)		
A4	Fixed data-2		
A5 to E9	Fixed data-1 (Initialized data)		
EA	Fixed data-2		
EB			
EC			
ED			
EE to FF	Fixed data-1 (Initialized data)		

#### 5. 1F Page Table

**Note 1:** If reading/writing data on pages 1F, set data: 01 to page: 0, address: 10, and then select pages F. By this data setting, the pages 1F can be selected.

After the data reading/writing finished, return the data on page: 0, address: 10 to “00”.

**Note 2:** Fixed data-1: Initialized data. (Refer to “1. Initializing the E, F, 1F Page Data”)

Fixed data-2: Modified data. (Refer to “2. Modification of E, F, 1F Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00 to 52	Fixed data-1 (Initialized data)		
53	Fixed data-2		
54 to D0	Fixed data-1 (Initialized data)		
D1	Fixed data-2		
D2 to FF	Fixed data-1 (Initialized data)		

### 1-3. CAMERA SYSTEM ADJUSTMENTS

Before perform the camera system adjustments, check that the specified values of “27 MHz Origin Oscillation Adjustment”, “Composite Video Out Level Adjustment” of “VIDEO SYSTEM ADJUSTMENT” are satisfied.

Check that the data of page: 0, address: 10, is “00”.

If not, select page: 0, address: 10, and set data “00”

#### 1. HALL Adjustment

For detecting the position of lens iris, adjust the hall AMP gain and offset.

Mode	CAMERA
Subject	Not required
Measurement Point	Displayed data of page: 1 (Note 3)
Measuring Instrument	Adjusting remote commander
Adjustment Page	F
Adjustment Address	12 to 17
Specified value	87 to 8B during IRIS OPEN 15 to 19 during IRIS CLOSE

**Note 1:** Check that the data of page: 0, address: 10 is “00”.

**Note 2:** Check that the data of page: 6, address: 02 is “00”.

If not, turn the power of unit OFF/ON.

**Note 3:** The right two digits of the page: 1 displayed data of the adjusting remote commander.

1:00:XX

└─── Displayed data

#### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	94	89	
3	6	95	17	
4	6	01	6D	Press PAUSE button. (Note 4)
5	6	02		Check the data changes to “01”.
6	6	01	00	Press PAUSE button.

**Note 4:** The adjustment data will be automatically input to page: F, address: 12 to 17.

#### Checking method:

Order	Page	Address	Data	Procedure
1	0	03	03	
2	6	01	01	Press PAUSE button.
3	1			Check that the displayed data (Note 3) during IRIS OPEN satisfied the specified value.
4	6	01	03	Press PAUSE button.
5	1			Check that the displayed data (Note 3) during IRIS CLOSE satisfied the specified value.

#### Processing after completing adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	94	00	
3	6	95	00	
4	0	03	00	
5	0	01	00	

## 2. Flange Back Adjustment **RadarW** (Using the minipattern box or flange back adjustment jig)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

Mode	CAMERA
Subject	Siemens star chart with ND filter for minipattern box (Note 1) or flange back adjustment jig
Measurement Point	Check operation on monitor TV
Measuring Instrument	
Adjustment Page	F
Adjustment Address	44 to 54
Specified value	Data of page: 6, address: 0C is "00"

**Note 1:** Dark Siemens star chart.

**Note 2:** Check that the data of page: 0, address: 10 is "00".

**Note 3:** Check that the data of page: 6, address: 02 is "00".  
If not, turn the power of unit OFF/ON.

**Note 4:** Perform the adjustment with the camcorder in horizontal state.

**Note 5:** Perform "HALL Adjustment" before this adjustment.

### Switch setting:

- 1) NIGHTSHOT PLUS ..... OFF
- 2) DISPLAY (Menu setting) ..... LCD PANEL

### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	48	01	
3	6	01	13	Press PAUSE button.
4	6	01	27	Press PAUSE button. (Note 6)
5	6	02		Check the data changes to "01".
6	6	0C		Check the data is "00".

**Note 6:** The adjustment data will be automatically input to page: F, address: 44 to 54.

### Processing after completing adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	01	25	Press PAUSE button.
3	6	01	00	Press PAUSE button.
4	6	48	00	
5	0	01	00	
6				Perform "Flange Back Check".

### Preparations (Using the minipattern box)

- 1) The minipattern box is installed as shown in the following figure.
- Note 7:** The attachment lenses are not used.
- 2) Install the minipattern box so that the distance between it and the front of lens of camcorder is less than 3 cm.
- 3) Make the height of minipattern box and the camera equal.
- 4) Check the output voltage of the regulated power supply is the specified voltage  $\pm 0.01$  Vdc.
- 5) Check that the center of Siemens star chart meets the center of shot image screen with the zoom lens at TELE end and WIDE end respectively.

**Specified voltage:** The specified voltage varies according to the minipattern box, so adjust the power supply output voltage to the specified voltage written on the sheet which is supplied with the minipattern box.

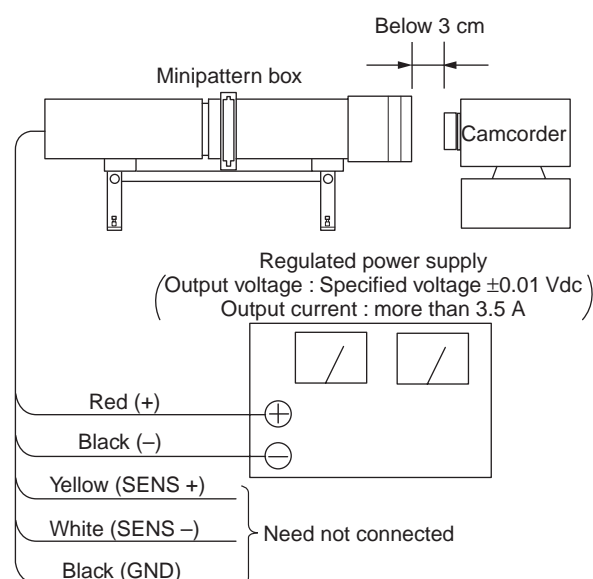


Fig. 6-1-6

### Preparation (Using the flange back adjustment jig) (Luminance: about 300 lux)

- 1) Install the flange back adjustment jig so that the distance between it and the front of lens of camera is less than 3 cm.
- 2) Make the height of flange back adjustment jig and the camera equal.
- 3) Check that the center of chart meets the center of shot image screen with the zoom lens at TELE end and WIDE end respectively.

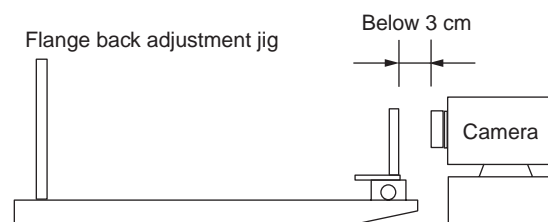


Fig. 6-1-7

### 3. Flange Back Adjustment (Using the flange back adjustment chart and subject more than 500 m away)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

#### 3-1. Flange Back Adjustment (1) **RadarW**

Mode	CAMERA
Subject	Flange back adjustment chart (2.0 m from the front of lens) (Luminance: 300 to 400 lux)
Measurement Point	Check operation on monitor TV
Measuring Instrument	
Adjustment Page	F
Adjustment Address	44 to 54
Specified value	Data of page: 6, address: 0C is "00"

**Note 1:** Check that the data of page: 0, address: 10 is "00".

**Note 2:** Check that the data of page: 6, address: 02 is "00".  
If not, turn the power of unit OFF/ON.

**Note 3:** Perform the adjustment with the camcorder in horizontal state.

**Note 4:** Perform "HALL Adjustment" before this adjustment.

#### Switch setting:

- 1) NIGHTSHOT PLUS ..... OFF
- 2) DISPLAY (Menu setting) ..... LCD PANEL

#### Preparations before adjustments:

- 1) Place the Flange back adjustment chart 2.0 m from the front of the lens.
- 2) Check that the center of Flange back adjustment chart meets the center of shot image screen with the zoom lens at TELE end and WIDE end respectively.

#### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	48	01	
3	6	01	13	Press PAUSE button.
4	6	01	15	Press PAUSE button. (Note 5)
5	6	02		Check the data changes to "01".
6	6	0C		Check the data is "00".

**Note 5:** The adjustment data will be automatically input to page: F, address: 44 to 54.

#### Processing after completing adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	01	25	Press PAUSE button.
3	6	01	00	Press PAUSE button.
4	6	48	00	
5	0	01	00	
6				Perform "Flange Back Adjustment (2)".

#### 3-2. Flange Back Adjustment (2) **RadarW**

Perform this adjustment after performing "Flange Back Adjustment (1)".

Mode	CAMERA
Subject	Subject more than 500 m away (Subject with clear contrast such as buildings, etc.)
Measurement Point	Check operation on monitor TV
Measuring Instrument	
Adjustment Page	F
Adjustment Address	44 to 54
Specified value	Data of page: 6, address: 0C is "00"

**Note 1:** Check that the data of page: 0, address: 10 is "00".

**Note 2:** Check that the data of page: 6, address: 02 is "00".  
If not, turn the power of unit OFF/ON.

#### Switch setting:

- 1) NIGHTSHOT PLUS ..... OFF
- 2) DISPLAY (Menu setting) ..... LCD PANEL

#### Preparations before adjustments:

- 1) Set the zoom lens to the TELE end and expose a subject that is more than 500 m away.  
(subjects with clear contrast such as building, etc.)  
(Nearby subjects less than 500 m away should not be in the screen)

#### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	48	01	
3	6	01	13	Press PAUSE button.
4				Place ND filter on the lens so that the optimum image is obtain.
5	6	01	29	Press PAUSE button. (Note 3)
6	6	02		Check the data changes to "01".
7	6	0C		Check the data is "00".

**Note 3:** The adjustment data will be automatically input to page: F, address: 44 to 54.

#### Processing after completing adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	01	25	Press PAUSE button.
3	6	01	00	Press PAUSE button.
4	6	48	00	
5	0	01	00	
6				Perform "Flange Back Check".

#### 4. Flange Back Check

Mode	CAMERA
Subject	Siemens star (2.0 m from the front of the lens) (Luminance: approx. 200 lux)
Measurement Point	Check operation on monitor TV
Measuring Instrument	
Specified value	Focused at the TELE end and WIDE end

**Note 1:** Check that the data of page: 0, address: 10 is “00”.

#### Switch setting:

- 1) NIGHTSHOT PLUS ..... OFF
- 2) DISPLAY (Menu setting) ..... LCD PANEL

**Note 2:** When the auto focus is ON, the lens can be checked if it is focused or not by observing the data on the page: 1 of the adjusting remote commander.

1 : 00 : XX

Odd: Focused  
Even: Unfocused

#### Checking method:

Order	Page	Address	Data	Procedure
1				Place the Siemens star 2.0 m from the front of the lens.
2				To open the IRIS, decrease the luminous intensity to the Siemens star up to a point before noise appear on the image.
3	6	40	01	
4	6	41	01	
5				Shoot the Siemens star with the zoom TELE end.
6				Turn on the auto focus.
7	0	03	0F	
8	1			Check that the lens is focused. (Note 2)
9	6	21	10	
10				Shoot the Siemens star with the zoom WIDE end.
11				Observe the TV monitor and check that the lens is focused.

#### Processing after completing adjustment:

Order	Page	Address	Data	Procedure
1	6	21	00	
2	6	40	00	
3	6	41	00	
4	0	03	00	



## 5. Optical Axis Adjustment

Correct a deviation of optical axis between the lens and the CCD imager.

If deviated, the screen center will be shifted when the lens is zoomed from TELE end to WIDE end.

Subject	Siemens Star
Measurement Point	Check operation on monitor TV
Measuring Instrument	
Adjustment Page	F
Adjustment Address	5A

**Note 1:** Check that the data of page: 0, address: 10 is "00".

**Note 2:** "Flange Back Adjustment" must be already finished.

### Switch setting:

- 1) DIGITAL ZOOM (Menu setting) ..... OFF
- 2) STEADYSHOT (Menu setting) ..... OFF
- 3) DISPLAY (Menu setting) ..... LCD PANEL

### Preparation for adjustment:

- 1) Play a monoscope portion of the System Check tape (WR5-5ND (NTSC) or WR5-5CD (PAL)).
- 2) Stick the optical axis deviation specification frame to the monitor screen so that the center of monoscope coincides with the center of specification frame.
- 3) Select the CAMERA mode.

### Adjusting method:

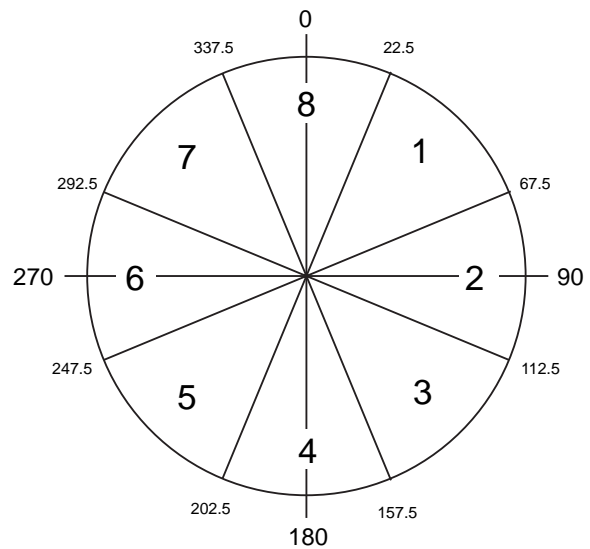
- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: F, address: 5A, and set data: 00, then press the PAUSE button on the adjusting remote commander.
- 3) Place the Siemens Star at 2 m position away from the lens.
- 4) Shoot the Siemens Star with the zoom at TELE end.
- 5) Change the lens direction so that the center of Siemens Star coincides with the center of optical axis deviation specification frame.
- 6) Shoot the Siemens Star with the zoom at WIDE end.
- 7) Check on the monitor TV which area the center of Siemens Star exists of the optical axis deviation specification frame. At this time, measure the amount of deviation "L1" (distance from the center of Siemens Star to the center of optical axis deviation specification frame).
- 8) From the following table, read correction data according to the area.

Area	Deviation Phase	Correction Data
1	22.6° to 67.5°	01
2	67.6° to 112.5°	02
3	112.6° to 157.5°	03
4	157.6° to 202.5°	04
5	202.6° to 247.5°	05
6	247.6° to 292.5°	06
7	292.6° to 337.5°	07
8	337.6° to 22.5°	08

- 9) Select page: F, address: 5A, and set correction data, then press the PAUSE button on the adjusting remote commander.
- 10) Shoot the Siemens Star with the zoom at TELE end.
- 11) Change the lens direction so that the center of Siemens Star coincides with the center of optical axis deviation specification frame.
- 12) Shoot the Siemens Star with the zoom at WIDE end.
- 13) Measure the amount of deviation "L2" (distance from the center of Siemens Star to the center of optical axis deviation specification frame).
- 14) Compare L1 and L2, and make sure that the L2 is smaller than L1.  
If large, select page: F, address: 5A, and set data: 00, then press the PAUSE button on the adjusting remote commander.

### Processing after completion of adjustment:

- 1) Select page: 0, address: 01, and set data: 00.



**Fig. 6-1-8**

## 6. Picture Frame Setting

Mode	CAMERA
Subject	Color bar chart (Color reproduction adjustment frame) (1 m (PTB-450) or 40 cm (PTB-1450) from the front of lens)
Measurement Point	Video terminal of A/V jack (75 $\Omega$ terminated)
Measuring Instrument	Oscilloscope and monitor TV
Specified Value	A=B, C=D, E=F

**Note 1:** Check that the data of page: 0, address: 10 is "00".

**Note 2:** Perform "Flange Back Adjustment" and "Optical Axis Adjustment" before this adjustment.

### Switch setting:

- 1) DIGITAL ZOOM (Menu setting) ..... OFF
- 2) STEADYSHOT (Menu setting) ..... OFF
- 3) DISPLAY (Menu setting) ..... LCD PANEL

### Setting method:

- 1) Select page: 6, address: 48, and set data: 01.
- 2) Adjust the zoom and the camera direction, and set to the specified position.
- 3) Mark the position of the picture frame on the monitor display, and adjust the picture frame to this position in following adjustments using "Color reproduction adjustment frame".

### Processing after completing camera system adjustments:

- 1) Select page: 6, address: 48, and set data: 00.

## Check on the oscilloscope

### 1. Horizontal period

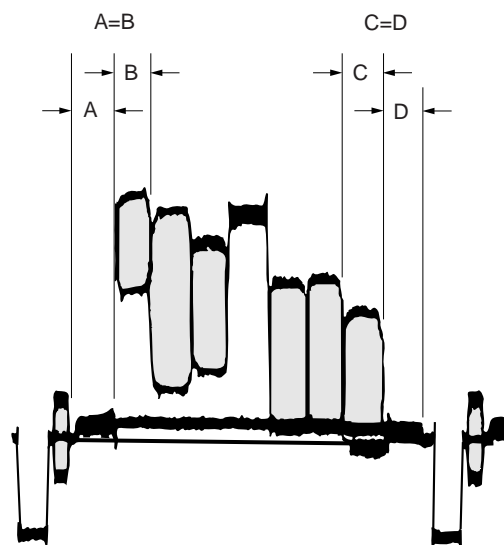


Fig. 6-1-9

### 2. Vertical period

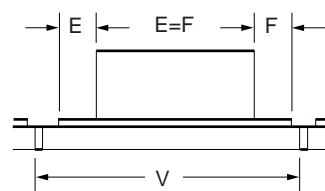


Fig. 6-1-10

## Check on the monitor TV (Underscanned mode)

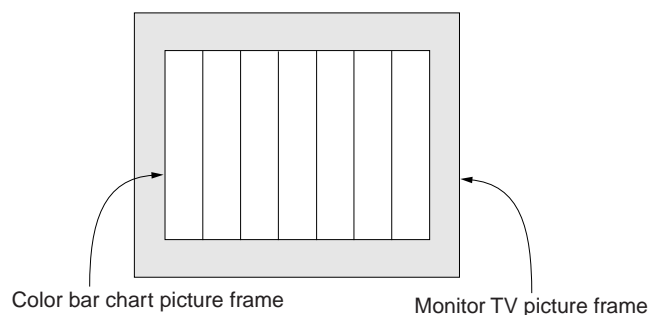


Fig. 6-1-11

7. Color Reproduction Adjustment

Adjust the color separation matrix coefficient so that proper color reproduction is produced.

Mode	CAMERA
Subject	Color bar chart (Color reproduction adjustment frame)
Measurement Point	Video terminal of A/V jack (75 Ω terminated)
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	33, 35, 3A, 3B
Specified Value	All color luminance points should settle within each color reproduction frame.

- Note 1:** Check that the data of page: 0, address: 10 is “00”.
- Note 2:** Perform “Flange Back Adjustment” before this adjustment.
- Note 3:** NTSC model: DCR-TRV380/TRV480  
PAL model: DCR-TRV480E

Switch setting:

- 1) NIGHTSHOT PLUS ..... OFF
- 2) DIGITAL ZOOM (Menu setting) ..... OFF
- 3) STEADYSHOT (Menu setting) ..... OFF
- 4) DISPLAY (Menu setting) ..... LCD PANEL

Adjusting method:

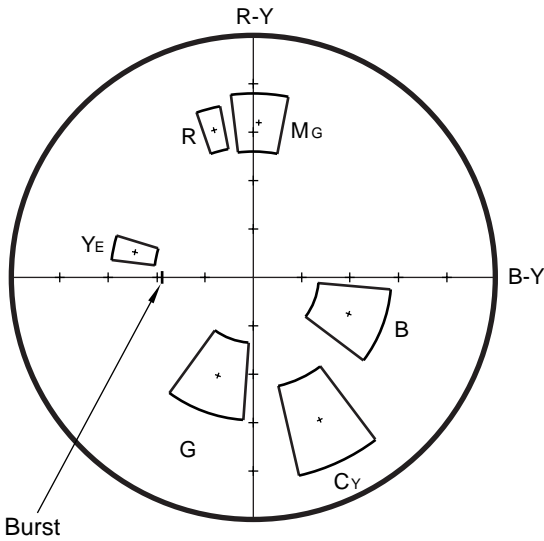
Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	48	01	
3	6	9D	86	
4	6	01	3D	Press PAUSE button.
5	F	80		Set the following data, and press PAUSE button. 37: NTSC model B7: PAL model
6				Adjust the GAIN and PHASE of the vectorscope, and set to the burst luminance point to the burst position of color reproduction frame.
7	F	33 35 3A 3B		Change the data and settle each color luminance point in each color reproduction frame. (Note 4)

- Note 4:** Be sure to press the PAUSE button of the adjusting remote commander before changing the addresses. If not, the new data will not be written to the memory.

Processing after completing adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	48	00	
3	6	9D	00	
4	0	01	00	

NTSC model



PAL model

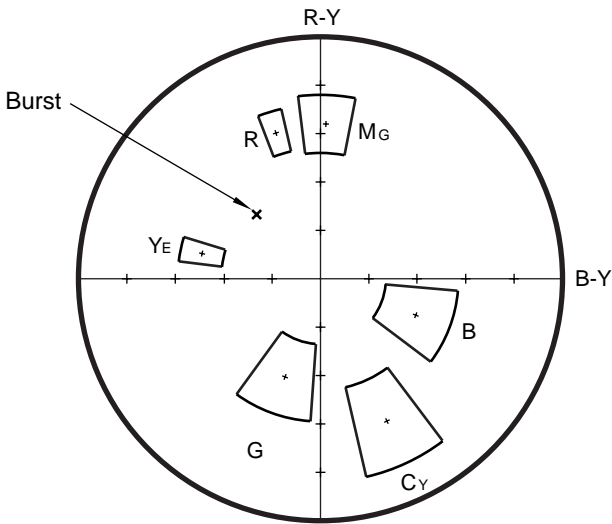


Fig. 6-1-12

## 8. LV Standard Data Input **RadarW**

Adjust the normal coefficient of the light value.

Mode	CAMERA
Subject	Clear chart (Color reproduction adjustment frame)
Measurement Point	Displayed data of page: 1 (Note 4)
Measuring Instrument	Adjusting remote commander
Adjustment Page	F
Adjustment Address	1A, 1B
Specified Value	0FE0 to 1020

**Note 1:** Perform “Flange Back Adjustment” before this adjustment.

**Note 2:** Check that the data of page: 0, address: 10 is “00”.

**Note 3:** Check that the data of page: 6, address: 02 is “00”.  
If not, turn the power of unit OFF/ON.

**Note 4:** The right four digits of the page: 1 displayed data of the adjusting remote commander.

1:XX:XX

— Displayed data

### Switch setting:

- 1) NIGHTSHOT PLUS ..... OFF
- 2) DIGITAL ZOOM (Menu setting) ..... OFF
- 3) STEADYSHOT (Menu setting) ..... OFF
- 4) DISPLAY (Menu setting) ..... LCD PANEL

### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	48	01	
3	6	01	0D	Press PAUSE button. (Note 5)
4	6	02		Check the data changes to “01”.
5	0	03	1E	
6	1			Check that the displayed data (Note 4) satisfied specified value.

**Note 5:** The adjustment data will be automatically input to page: F, address: 1A and 1B.

### Processing after completing adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	48	00	
3	0	03	00	
4	0	01	00	

## 9. Auto White Balance Standard Data Input **RadarW**

Adjust the white balance reference at 3200K.

Mode	CAMERA
Subject	Clear chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	2A to 2D

**Note 1:** Perform “Color Reproduction Adjustment” before this adjustment.

**Note 2:** Check that the data of page: 0, address: 10 is “00”.

**Note 3:** Check that the data of page: 6, address: 02 is “00”.  
If not, turn the power of unit OFF/ON.

### Switch setting:

- 1) NIGHTSHOT PLUS ..... OFF
- 2) DIGITAL ZOOM (Menu setting) ..... OFF
- 3) STEADYSHOT (Menu setting) ..... OFF
- 4) DISPLAY (Menu setting) ..... LCD PANEL

### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	48	01	
3	6	01	11	Press PAUSE button.
4	6	01	0B	Press PAUSE button. (Note 4)
5	6	02		Check the data changes to “01”.

**Note 4:** The adjustment data will be automatically input to page: F, address: 2A to 2D.

### Processing after completing adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	48	00	
3	0	01	00	

## 10. Auto White Balance Adjustment

Adjust to the proper auto white balance output data.

If it is not correct, auto white balance and color reproducibility will be poor.

Mode	CAMERA
Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction
Adjustment Page	F
Adjustment Address	2E to 31, 3E to 41

**Note 1:** Perform “Auto White Balance Standard Data Input” before this adjustment.

**Note 2:** Check that the data of page: 0, address: 10 is “00”.

**Note 3:** Check that the data of page: 6, address: 02 is “00”. If not, turn the power of unit OFF/ON.

**Note 4:** NTSC model: DCR-TRV380/TRV480

PAL model: DCR-TRV480E

### Switch setting:

- 1) NIGHTSHOT PLUS ..... OFF
- 2) DIGITAL ZOOM (Menu setting) ..... OFF
- 3) STEADYSHOT (Menu setting) ..... OFF
- 4) DISPLAY (Menu setting) ..... LCD PANEL

### Adjusting method:

Order	Page	Address	Data	Procedure
1				Place the C14 filter on the lens.
2	0	01	01	
3	6	48	01	
4	F	3E		Set the following data, and press PAUSE button. 2D: NTSC model 2C: PAL model
5	F	3F		Set the following data, and press PAUSE button. 10: NTSC model 50: PAL model
6	F	40	58	Press PAUSE button.
7	F	41		Set the following data, and press PAUSE button. 50: NTSC model 90: PAL model
8	6	01	83	Press PAUSE button.
9	6	01	81	Press PAUSE button. (Note 5)
10	6	02		Check the data changes to “01”.

**Note 5:** The adjustment data will be automatically input to page: F, address: 2E to 31.

### Processing after completing adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	48	00	
3	0	01	00	
4				Remove the C14 filter on the lens.

## 11. Auto White Balance Check **RadarW**

Mode	CAMERA	
Subject	Clear chart (Color reproduction adjustment frame)	
Filter	Filter C14 for color temperature correction ND filter 1.0, 0.4 and 0.1	
Measurement Point	Video terminal of A/V OUT jack (75 Ω terminated)	Displayed data of page: 1 (Note 3)
Measuring Instrument	Vectorscope	Adjusting remote commander
Specified Value	Fig. 6-1-13 (A) and (B)	NTSC model R ratio: 2CD0 to 2D50 B ratio: 5810 to 5890 InOut data: 8000 to 8BC0
		PAL model R ratio: 2C10 to 2C90 B ratio: 5850 to 58D0 InOut data: 8000 to 8BC0

**Note 1:** Check that the data of page: 0, address: 10 is "00".

**Note 2:** Perform "Auto White Balance Adjustment" before this adjustment.

**Note 3:** The right four digits of the page: 1 displayed data of the adjusting remote commander.

1:XX:XX

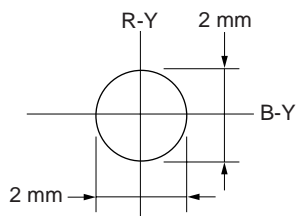
Displayed data

**Note 4:** NTSC model: DCR-TRV380/TRV480

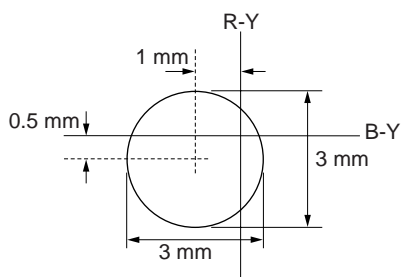
PAL model: DCR-TRV480E

### Switch setting:

- 1) NIGHTSHOT PLUS ..... OFF
- 2) DIGITAL ZOOM (Menu setting) ..... OFF
- 3) STEADYSHOT (Menu setting) ..... OFF
- 4) DISPLAY (Menu setting) ..... LCD PANEL



**Fig. 6-1-13 (A)**



**Fig. 6-1-13 (B)**

### Checking method:

Order	Page	Address	Data	Procedure
1				Check that the lens is not covered with either filter.
2	6	48	01	
INDOOR check				
3	6	01	0F	Press PAUSE button.
4				Check that the center of the white luminance point within the circle shown Fig. 6-1-13 (A)
5	6	01	00	Press PAUSE button.
OUTDOOR check				
6				Place the C14 filter on the lens.
7	6	01	3F	Press PAUSE button.
8				Check that the center of the white luminance point within the circle shown Fig. 6-1-13 (B)
9	0	03	04	
10	1			Check that the displayed data (Note 3) satisfied the R ratio specified value.
11	0	03	05	
12	1			Check that the displayed data (Note 3) satisfied the B ratio specified value.
13				Remove the C14 filter
InOut data check				
14				Place the ND filter 1.5 (1.0 + 0.4 + 0.1) on the lens.
15	6	01	00	Press PAUSE button.
16	0	03	06	
17	1			Check that the displayed data (Note 3) satisfied the InOut data specified value.

### Processing after completing adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	48	00	
3	0	03	00	
4				Remove the ND filter 1.5 (1.0 + 0.4 + 0.1) on the lens.

## 12. Angular Velocity Sensor Output Check and

### Steadyshot Check **RadarW**

Check the angular velocity sensor output.

#### Precautions on the Parts Replacement

There are two types of repair parts.

Type A ENC03JA

Type B ENC03JB

Replace the broken sensor with a same type sensor. If replace with other type parts, the image will vibrate up and down or left and right during hand-shake correction operations.

#### Precautions on Angular Velocity Sensor

The sensor incorporates a precision oscillator. Handle it with care as if it dropped, the balance of the oscillator will be disrupted and operations will not be performed properly.

Mode	CAMERA
Subject	Not required
Measurement Point	Displayed data of page: 1 (Note 2)
Measuring Instrument	Adjusting remote commander
Specified value	PITCH data: 2680 to 5080 YAW data: 2680 to 5080

**Note 1:** Check that the data of page: 0, address: 10 is "00".

**Note 2:** The right four digits of the page: 1 displayed data of the adjusting remote commander.

1:XX:XX

└─── Displayed data

#### Switch setting:

- 1) ZOOM ..... TELE end
- 2) STEADYSHOT (Menu setting) ..... ON

#### Checking method:

Order	Page	Address	Data	Procedure
PITCH sensor output check (SE752 of SI-041 board)				
1	0	03	11	
2	1			With the set in still state, check that the displayed data (Note 2) satisfies the PITCH data specified value.
YAW sensor output check (SE751 of SI-041 board)				
3	0	03	12	
4	1			With the set in still state, check that the displayed data (Note 2) satisfies the YAW data specified value.
5	0	03	00	
Steadyshot operation check				
6				Shake the set vertically and horizontally to check that the steadyshot function operates normally.

## 13. CCD Defect Check **RadarW**

Mode	CAMERA
Subject	Not required
Measurement Point	Check on the monitor TV
Measuring Instrument	

**Note:** Check that the data of page: 0, address: 10 is "00".

#### Checking method:

Order	Page	Address	Data	Procedure
1	6	01	05	Press PAUSE button.
2	6	1F	CC	
3	6	40	03	
4				Check on the monitor screen that no defect is found.
5	6	40	04	
6				Check on the monitor screen that no defect is found.

#### Processing after completing adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	40	00	
3	6	1F	00	

#### 1-4. LCD SYSTEM ADJUSTMENTS

Before perform the LCD system adjustments, check that the data of page: 0, address: 10 is "00".

If not, select page: 0, address: 10, and set the data "00".

**Note 1:** When replacing the LCD unit, be careful to prevent damages caused by static electricity.

**Note 2:** Set the LCD BRIGHT (Menu setting) to the center.  
Set the LCD BL LEVEL (Menu setting) to the BRIGHT.  
Set the LCD COLOR (Menu setting) to the center.

**Note 3:** Open the LCD panel during the LCD system adjustment.

#### 1. LCD Level Adjustment (PD-205 Board)

This adjustment does the following items automatically.

VCO Adjustment  
RGB AMP Adjustment  
Contrast Adjustment  
PSIG black Adjustment

Mode	VTR stop (PLAY/EDIT mode)
Signal	No signal
Adjustment Page	C
Adjustment Address	50, 51 (VCO Adjustment) 53 (RGB AMP Adjustment) 58 (Contrast Adjustment) 5B (PSIG black Adjustment)

**Note 1:** Check that the data of page: 0, address: 10 is "00".

**Note 2:** NTSC model: DCR-TRV380/TRV480  
PAL model: DCR-TRV480E

#### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	01	5A	Press PAUSE button. (Note 3)
3	3	02		Check the data changes to "00".
4	3	03		Check that the data is "00". (Note 4)
5	C	50		Read the data and this data is named $D_{50}$ .
6				Convert $D_{50}$ to decimal notation, and obtain $D_{50}'$ . (Note 5)
7				Calculate $D_{51}'$ using following equations. (decimal calculation) $D_{51}' = D_{50}' + 10$ (NTSC model) $D_{51}' = D_{50}' - 10$ (PAL model)
8				Convert $D_{51}'$ to a hexadecimal number, and obtain $D_{51}$ . (Note 5, 6)
9	C	51	$D_{51}$	Press PAUSE button.
10	0	01	00	

**Note 3:** The adjustment data will be automatically input to page: C, address: 50, 51, 53, 58 and 5B.

**Note 4:** If the data is other than "00", adjustment has errors.  
For the error contents, see the following table.

**Note 5:** Refer to table 6-4-1. "Hexadecimal-decimal conversion table".

**Note 6:** If  $D_{51}' > 255$ , then  $D_{51} = FF$  (NTSC model)  
If  $D_{51}' < 0$ , then  $D_{51} = 00$  (PAL model)

Page	Address	Data	Error contents
3	C6	01	Adjustment time out.
		53	RGB AMP adjustment error
		54	Contrast adjustment error
		56	PSIG black adjustment error
		62	VCO adjustment error



## 2. LCD V-COM Adjustment (PD-205 Board)

Set the DC bias of the common electrode drive signal of LCD to the specified value.

If deviated, the LCD display will be move, producing flicker and conspicuous vertical lines.

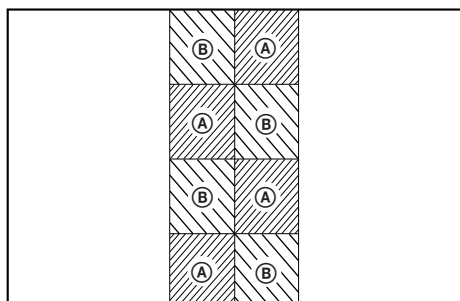
Mode	VTR stop (PLAY/EDIT mode)
Signal	No signal
Measurement Point	Check on LCD screen
Measuring Instrument	
Adjustment Page	C
Adjustment Address	52
Specified Value	The brightness difference between the section-A and section-B is minimum

**Note 1:** Perform “LCD Level Adjustment” before this adjustment.

**Note 2:** Check that the data of page: 0, address: 10 is “00”.

### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	C	52		Change the data so that brightness of the section A and section B is equal.
3	C	52		Subtract 8 from the data.
4	C	52		Press PAUSE button.
5	0	01	00	



**Fig. 6-1-14**

## 3. LCD White Balance Adjustment (PD-205 Board)

Correct the white balance.

If deviated, the LCD screen color cannot be reproduced.

Mode	VTR stop (PLAY/EDIT mode)
Signal	No signal
Measurement Point	Check on LCD screen
Measuring Instrument	
Adjustment Page	C
Adjustment Address	56, 57
Specified Value	LCD screen must not be colored

**Note 1:** Check that the data of page: 0, address: 10 is “00”.

**Note 2:** Check the white balance only when replacing the following parts. If necessary, adjust them.

1. LCD panel
2. Light induction plate
3. IC6001

### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	C	56	87	Press PAUSE button.
3	C	57	68	Press PAUSE button.
4				Check that the LCD screen is not colored. If not colored, proceed to step 6.
5	C	56 57		Change the data so that the LCD screen is not colored. (Note 3)
6	0	01	00	

**Note 3:** To write in the non-volatile memory (EEPROM), press the PAUSE button each time to set the data.

## 6-2. MECHANISM SECTION ADJUSTMENTS

Mechanism Section adjustments, checks, and replacement of mechanism parts, refer to the separate volume “8 mm Video Mechanism Adjustment Manual IX M2000 Mechanism”.

**Note 1:** Before perform the adjustments, check that the data of page: 0, address: 10 is “00”.

If not, select page: 0, address: 10, and set the data “00”.

**Note 2:** NTSC model: DCR-TRV380/TRV480

PAL model: DCR-TRV480E

### 2-1. ADJUSTMENT REMOTE COMMANDER

Connect the adjustment remote commander to CN1011 of VC-345 board via I/F unit for LANC control (J-6082-521-A) and CPC jig connector (J-6082-539-A). To operate the adjustment remote commander, connect the AC power adapter (8.4Vdc) to the DC IN jack of I/F unit for LANC control, or connect the L series Info-LITHIUM battery to the battery terminal of I/F unit for LANC control.

## 2-2. Hi8/STANDARD8 MODE (DCR-TRV480/TRV480E)

### 2-2-1. How to Enter Playback Mode without Cassette

- 1) Refer to "Section 2. DISASSEMBLY" and supply the power with the cabinet assembly removed. (So that the mechanical deck can be operated.)
- 2) Connect the adjustment remote commander.
- 3) Turn on the HOLD switch of the adjustment remote commander.
- 4) Close the cassette compartment without loading a cassette and complete loading.
- 5) Select page: 0, address: 01, and set data: 01.
- 6) Select page: 0, address: 10, and set data: 01.
- 7) Select page: 8, address: 12, set data: 01, and press the PAUSE button of the adjustment remote commander.
- 8) Select page: 0, address: 10, and set data: 00.
- 9) Select page: A, address: 10, set data: 12, and press the PAUSE button of the adjustment remote commander.
- 10) Press the [P-MENU] on the touch panel.  
Select [MENU] → [STANDARD SET] → [PB MODE] to activate the [Hi8/8] mode.
- 11) Press the PLAY button of the unit.

**Note 2:** Be sure to carry out "Processing after checking Operations" after checking the operations.  
Set the data of page: D, address: 10 to "02", if the sensor ineffective mode, forced VTR power supply ON mode is to be used together.

#### [Procedure after checking operations]

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Press the [P-MENU] on the touch panel.  
Select [MENU] → [STANDARD SET] → [PB MODE] to activate the [AUTO] mode.
- 3) Select page: 0, address: 10, and set data: 01.
- 4) Select page: 8, address: 12, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 5) Select page: 0, address: 10, and set data: 00.
- 6) Select page: A, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 7) Select page: 0, address: 01, and set data: 00.
- 8) Disconnect the power supply of the unit.

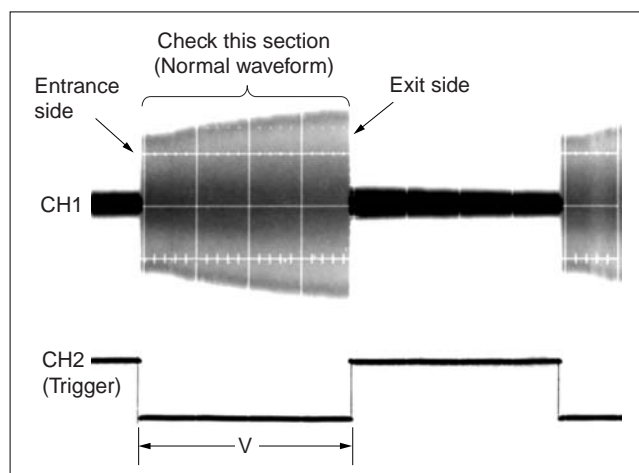


Fig. 6-2-1

## 2-2-2. Tape Path Adjustment

### 1. Preparations for Adjustment

- 1) Clean the tape path face (tape guide, capstan shaft, pinch roller).
- 2) Connect the adjustment remote commander.
- 3) Turn on the HOLD switch of the adjustment remote commander.
- 4) Select page: 0, address: 01, and set data: 01.
- 5) Press the [P-MENU] on the touch panel.  
Select [MENU] → [STANDARD SET] → [PB MODE] to activate the [Hi8/8] mode.
- 6) Select page: 0, address: 10, and set data: 01.
- 7) Select page: 8, address: 12, set data: 08, and press the PAUSE button of the adjustment remote commander.
- 8) Select page: 0, address: 10, and set data: 00.  
(Be sure to perform "Processing after operation" after completing adjustments)
- 9) Connect the oscilloscope to I/F unit for LANC control.  
Channel 1: IR VIDEO (Pin ② of CN1011)  
Channel 2 (Trigger) : SWP (Pin ⑤ of CN1011)
- 10) Playback Hi8/standard 8 mm alignment tape for tracking.  
(WR5-1NU(NTSC))  
(WR5-1CU(PAL))
- 11) Check that the oscilloscope RF waveform is normal at the entrance and exit.  
If not normal, adjust according to the separate volume "8mm Video Mechanical Adjustment Manual IX [M2000 Mechanism]".
- 12) Perform "Processing after operations", after completing adjustment.

#### Test point of I/F unit for LANC control

Pin No.	Signal Name	Pin No.	Signal Name
	BL	15	EVF VCO
14	EVF VG		BL 4.75
9	PB RF (MON)		
3	BPF MONI	6, 8, 10	GND
	TMS	7	REC RF (RF IN)
	TDI		TDO
5	SWP		TCK
4	CAP FG	2	IR VIDEO

**Note:** Pin No. are those of CN1101.

Table 6-2-1

#### [Procedure after operations]

- 1) Connect the adjustment remote commander, and turn on the HOLD switch.
- 2) Select page: 0, address: 01, and set data: 01.
- 3) Press the [P-MENU] on the touch panel.  
Select [MENU] → [STANDARD SET] → [PB MODE] to activate the [AUTO] mode.
- 4) Select page: 0, address: 10, and set data: 01.
- 5) Select page: 8, address: 12, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 6) Select page: 0, address: 10, and set data: 00.
- 7) Select page: 0, address: 01, and set data: 00.
- 8) Remove the power supply from the unit.

## 2-3. DIGITAL8 MODE

### 2-3-1. How to Enter Record Mode without Cassette

- 1) Connect the adjustment remote commander.
- 2) Turn the HOLD switch of the adjustment remote commander to the ON position.
- 3) Close the cassette compartment without the cassette.
- 4) Select page: 3, address: 01, and set data: 0C, and press the PAUSE button of the adjustment remote commander. (The mechanism enters the record mode automatically)  
**Note:** The function buttons becomes inoperable.
- 5) To quit the record mode, select page: 3, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander. (Whenever you want to quit the record mode, be sure to quit following this procedure)

### 2-3-2. How to Enter Playback Mode without Cassette

- 1) Connect the adjustment remote commander.
- 2) Turn the HOLD switch of the adjustment remote commander to the ON position.
- 3) Close the cassette compartment without the cassette.
- 4) Select page: 3, address: 01, and set data: 0B, and press the PAUSE button of the adjustment remote commander. (The mechanism enters the playback mode automatically)  
**Note:** The function buttons becomes inoperable.
- 5) To quit the playback mode, select page: 3, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander. (Whenever you want to quit the playback mode, be sure to quit following this procedure)

## 2-3-3. Overall Tape Path Check

### 1. Recording of the Tape Path Check Signal

- 1) Clean the tape running side (tape guide, capstan shaft, pinch roller).
- 2) Connect the adjustment remote commander.
- 3) Turn the HOLD switch of the adjustment remote commander to the ON position.
- 4) Set to the camera recording mode.
- 5) Select page: 3, address: 1C, set data: 5D, and press the PAUSE button of the adjustment remote commander.
- 6) Record for several minutes.
- 7) Release the camera recording mode.
- 8) Select page: 3, address: 1C, set data: 00, and press the PAUSE button.

### 2. Tape Path Check

- 1) Clean the tape running side (tape guide, capstan shaft, pinch roller).
- 2) Connect the adjustment remote commander.
- 3) Turn the HOLD switch of the adjustment remote commander to the ON position.
- 4) Connect the oscilloscope to I/F unit for LANC control.  
Channel 1: PB RF (MON) (Pin ⑨ of CN1011)  
Channel 2 (Trigger) : SWP (Pin ⑤ of CN1011)  
**Note:** Connect a 75  $\Omega$  resistor between PB RF (MON) and GND.
- 5) Select page: A, address: 1C, and set data: 30.  
(If the Digital8 mode is not activated, select the CAMERA mode once.)
- 6) Playback the tape path check signal.
- 7) Select page: 3, address: 33, and set data: 08.
- 8) Select page: 3, address: 26, and set data: 31.
- 9) Check that the oscilloscope RF waveform is flat at the entrance and exit.  
If not flat, perform the following adjustments.  
DCR-TRV480/TRV480E:  
"2-2-2. Tape Path Adjustment" of "2-2. Hi8/STANDARD8 MODE". (Refer to page 6-30)  
DCR-TRV380:  
"2-3-4. Tape Path Adjustment" of "2-3. DIGITAL8 MODE". (Refer to page 6-32)
- 10) Select page: 3, address: 26, and set data: 00.
- 11) Select page: 3, address: 33, and set data: 00.
- 12) Select page: A, address: 1C, and set data: 38.

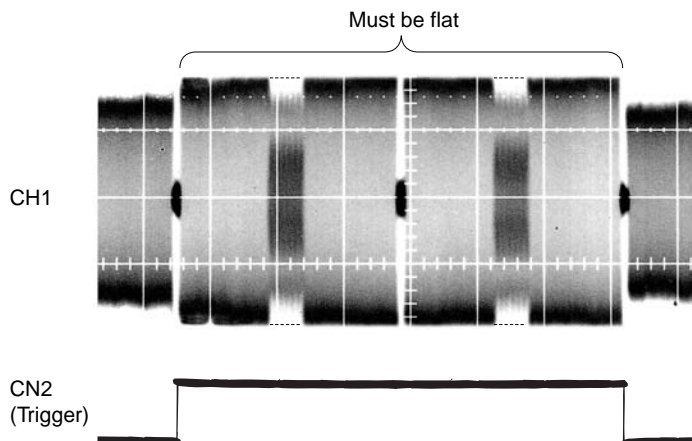


Fig. 6-2-2

## 2-3-4. Tape Path Adjustment (DCR-TRV380)

### 1. Preparations for Adjustment

- 1) Clean the tape path face (tape guide, drum, capstan shaft, pinch roller).
- 2) Connect the adjustment remote commander.
- 3) Turn on the HOLD switch of the adjustment remote commander.
- 4) Select page: 3, address: 33, and set data: 08.
- 5) Connect the oscilloscope to I/F unit for LANC control.  
Channel 1: PB RF (MON)  
Channel 2: SWP

**Note:** Connect a 75  $\Omega$  resistor between the test point PB RF (MON) and GND.

75  $\Omega$  resistor (Parts code: 1-247-804-11)

- 6) Playback the SW/OL standard tape. (WR5-2D)
- 7) Check that the oscilloscope RF waveform is flat at the entrance and exit.  
If not flat, perform the following section 2. until it is flat.
- 8) Perform "Processing after operations", after completing adjustment.

### Test point of I/F unit for LANC control

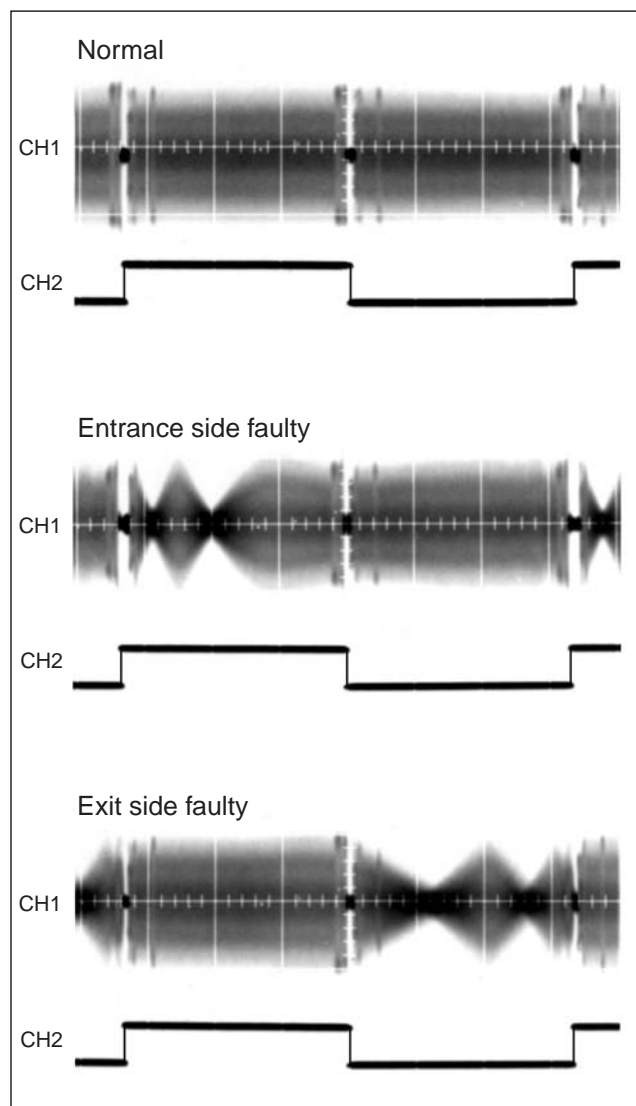
Pin No.	Signal Name	Pin No.	Signal Name
	BL	15	EVF VCO
14	EVF VG		BL 4.75
9	PB RF (MON)		
3	BPF MONI	6, 8, 10	GND
	TMS	7	REC RF (RF IN)
	TDI		TDO
5	SWP		TCK
4	CAP FG	2	IR VIDEO

**Note:** Pin No. are those of CN1011.

**Table 6-2-2.**

### [Processing after operations]

- 1) Connect the adjustment remote commander, and turn on the HOLD switch.
- 2) Select page: 3, address: 33, and set data: 00.
- 3) Remove the power supply from the unit.



**Fig. 6-2-3**

## 2. Tape Path Adjustment

- 1) Playback the SW/OL standard tape. (WR5-2D)
- 2) Turn the tape guide No.3 and No.6 alternately until the waveform becomes flat. (Fig. 6-2-6)

**Note:** Zenith adjustment screws for the TG3 and TG6 do not need to be adjusted.

### [Entrance side adjustment]

- 3) Turn the No.3 guide slowly in the clockwise direction until the waveform amplitude at the entrance side begins to become small. (Fig. 6-2-7 (A))

Confirm the rotation angle (A) of the No.3 guide.

- 4) Turn the No.3 guide slowly in the counterclockwise direction until the waveform becomes flat. (Fig. 6-2-6)

- 5) Turn the No.3 guide slowly in the counterclockwise direction until the waveform amplitude at the entrance side begins to become small. (Fig. 6-2-7 (B))

Confirm the rotation angle (B) of the No.3 guide.

- 6) Turn the No.3 guide slowly in the clockwise direction and set up in the angle (C) in the middle of the rotation angle (A) and the rotation angle (B). (Fig. 6-2-5)

### [Exit side adjustment]

- 7) Turn the No.6 guide slowly in the clockwise direction until the waveform amplitude at the exit side begins to become small. (Fig. 6-2-8 (A))

Confirm the rotation angle (A) of the No.6 guide.

- 8) Turn the No.6 guide slowly in the counterclockwise direction until the waveform becomes flat. (Fig. 6-2-6)

- 9) Turn the No.6 guide slowly in the counterclockwise direction until the waveform amplitude at the exit side begins to become small. (Fig. 6-2-8 (B))

Confirm the rotation angle (B) of the No.6 guide.

- 10) Turn the No.3 guide slowly in the clockwise direction and set up in the angle (C) in the middle of the rotation angle (A) and the rotation angle (B). (Fig. 6-2-5)

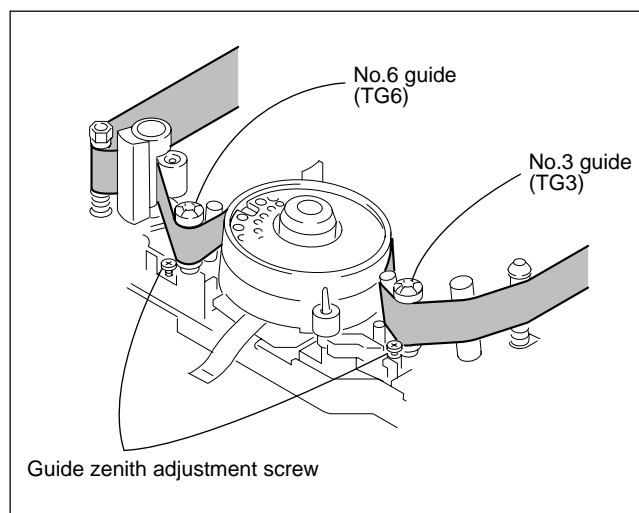


Fig. 6-2-4

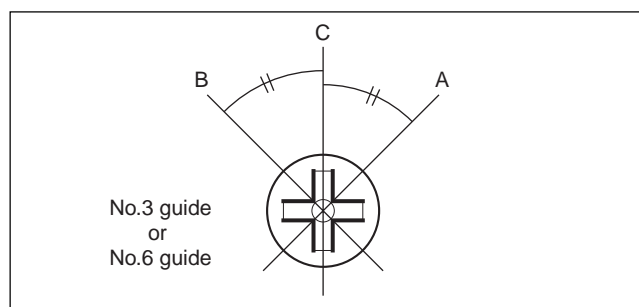


Fig. 6-2-5

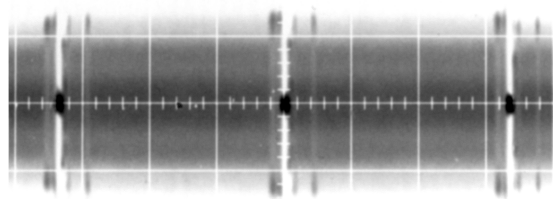


Fig. 6-2-6

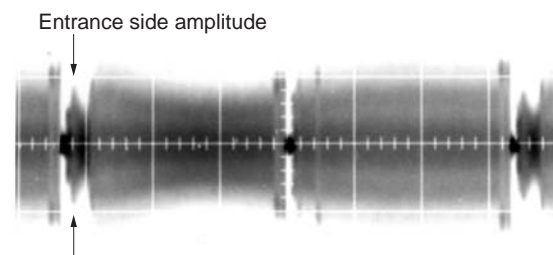


Fig. 6-2-7 (A)

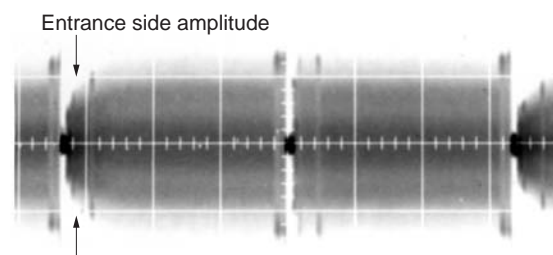


Fig. 6-2-7 (B)

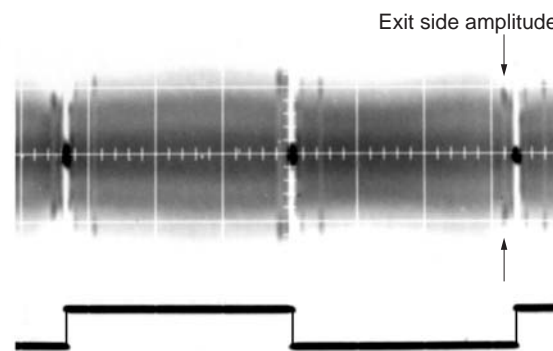


Fig. 6-2-8 (A)

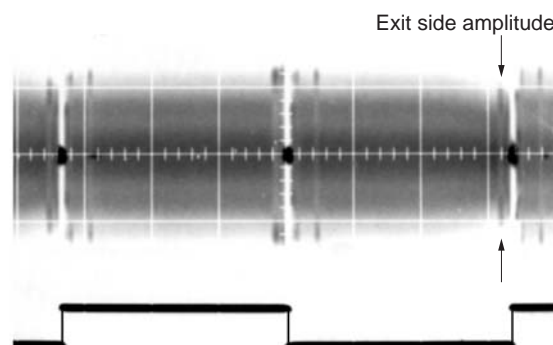


Fig. 6-2-8 (B)

### 3. No.7 Guide (TG7) Adjustment

- 1) Playback a tape in REV mode.
- 2) Confirm that tape slack dose not occur in between the guide No.6 (TG6) ① and capstan ②. If the tape slack is found, turn the height adjustment screw ④ of the Guide No.7 (TG7) ③ until tape slack is removed.
- 3) Playback a tape in normal mode. Confirm that tape slack dose not occur in between the guide No.7 (TG7) ③ and capstan ②. (Specification = 0.5 mm or less) If the tape slack of more than 0.5 mm is found, turn the height adjustment screw ④ until the slack is 0.5 mm or less. Playback a tape in REV mode and confirm that tape slack occurred in between the guide No.6 (TG6) ① and capstan ② is 0.3 mm or less, the adjustment is complete.

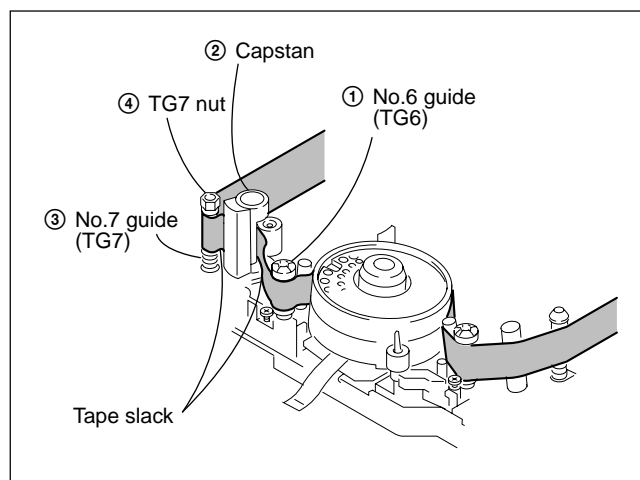


Fig. 6-2-9

### 4. CUE, REV Waveforms Check

- 1) Playback the SW/OL standard tape (WR5-2D) in REV mode. Confirm that pitches between the peaks of the waveform are equally spaced for 5 seconds or longer. The pitches are not equally spaced, perform section "2-4-2. Tape Path Adjustment" and section "2-4-3. No.7 Guide (TG7) Adjustment".
- 2) Playback the SW/OL standard tape in CUE mode. Confirm that pitches between the peaks of the waveform are equally spaced for 5 seconds or longer. The pitches are not equally spaced, perform section "2-4-2. Tape Path Adjustment".

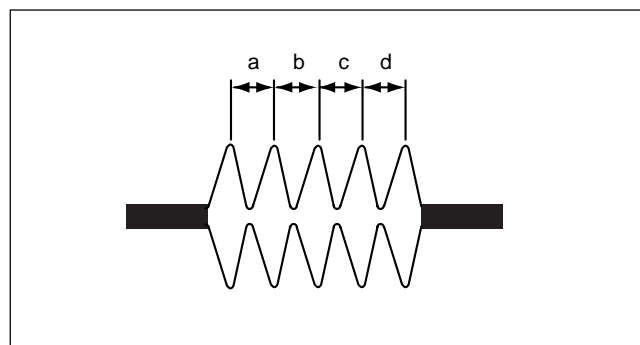


Fig. 6-2-10

### 2-3-5. Checks after Adjustments

#### 1. Waveform Build-up Check

- 1) Playback the SW/OL standard tape.
- 2) Eject the tape once, insert and load the tape.
- 3) Start playing back the tape and confirm that the RF waveform builds up in three seconds with flat envelope. Confirm at this time that tape slack dose not occur near pinch roller.
- 4) Playback the tape in CUE/REV and FF/REW modes respectively. Confirm that the RF waveform builds up in three seconds with flat envelope. Confirm at this time that tape slack dose not occur near pinch roller.
- 5) Repeat the check items 2) to 5) again.

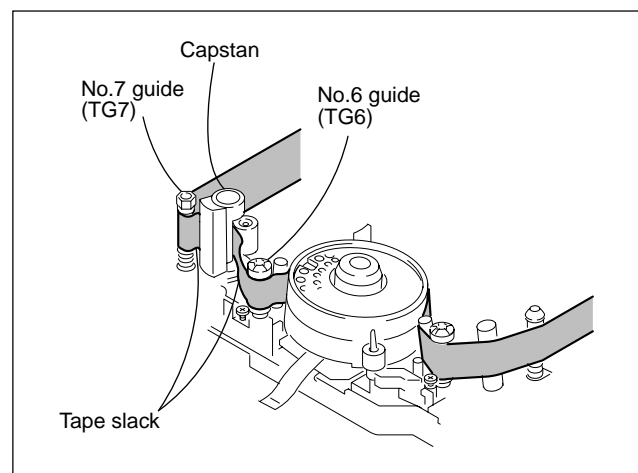


Fig. 6-2-11

#### 2. Tape Path Check

- 1) Insert a thin video tape such as P5-120MP. Playback the thin tape. Confirm that there is no clearance or curl of 0.3 mm or more at the following points: Upper flange of guide No.3, upper flange of guide No. 6, upper and lower flanges of guide No.7.
- 2) Confirm that there is no clearance or curl of 0.3 mm or more at each tape guide when the FF button is pressed from the playback mode to enter the CUE mode, and when the REW button is pressed from the playback mode to enter the REV mode.

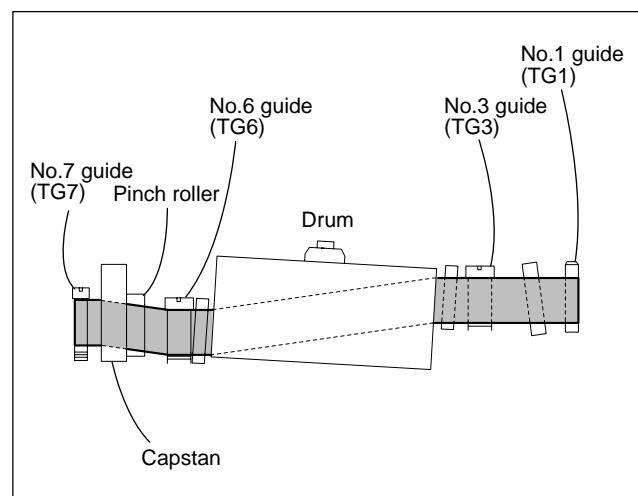


Fig. 6-2-12



## 6-3. VIDEO SECTION ADJUSTMENTS

### 3-1. PREPARATIONS BEFORE ADJUSTMENTS

Use the following measuring instruments for video section adjustments.

**Note:** NTSC model: DCR-TRV380/TRV480  
PAL model: DCR-TRV480E

#### 3-1-1. Equipment to Required

- 1) TV monitor
- 2) Oscilloscope (dual-phenomenon, band width above 30 MHz with delay mode) (Unless specified otherwise, use a 10 : 1 probe)
- 3) Frequency counter
- 4) Digital voltmeter
- 5) Audio level meter
- 6) Audio distortion meter
- 7) Audio generator
- 8) Audio attenuator
- 9) Regulated power supply
- 10) Digital8 alignment tapes
  - SW/OL standard (WR5-2D)  
Parts code: 8-967-993-22
  - Audio operation check for NTSC (WR5-3ND)  
Parts code: 8-967-993-32
  - System operation check for NTSC (WR5-5ND)  
Parts code: 8-967-993-42
  - Audio operation check for PAL (WR5-3CD)  
Parts code: 8-967-993-37
  - System operation check for PAL (WR5-5CD)  
Parts code: 8-967-993-47
- 11) NTSC Hi8/Standard8 alignment tapes
  - For tracking adjustment (WR5-1NU)  
Parts code: 8-967-995-04
  - For video frequency characteristics adjustment (WR5-10NM)  
Parts code: 8-967-995-03
  - For checking Standard 8 mode operations  
For LP (WR5-4NL)  
Parts code: 8-967-995-51  
For SP (WR5-5NSP)  
Parts code: 8-967-995-42
  - Note:** The following alignment tapes can also be used.  
WR5-4NSP (8-967-995-41)
  - For checking Hi8 mode operations  
For LP (WR5-8NLE)  
Parts code: 8-967-995-52  
For SP (WR5-8NSE)  
Parts code: 8-967-995-43
  - For BPF adjustment (WR5-11NS)  
Parts code: 8-967-995-71

- 12) PAL Hi8/Standard8 alignment tapes
  - For tracking adjustment (WR5-1CU)  
Parts code: 8-967-995-09
  - For video frequency characteristics adjustment (WR5-10CM)  
Parts code: 8-967-995-08
  - For checking Standard 8 mode operations  
For LP (WR5-4CL)  
Parts code: 8-967-995-56  
For SP (WR5-5CSP)  
Parts code: 8-967-995-47
  - Note:** The following alignment tapes can also be used.  
1) WR5-3CL (8-967-995-36)  
2) WR5-4CSP (8-967-995-46)
  - For checking Hi8 mode operations  
For LP (WR5-8CLE)  
Parts code: 8-967-995-57  
For SP (WR5-8CSE)  
Parts code: 8-967-995-48
  - For BPF adjustment (WR5-11CS)  
Parts code: 8-967-995-76
- 13) Adjustment remote commander (J-6082-053-B)
- 14) CPC jig connector (J-6082-539-A)
- 15) I/F unit for LANC control (J-6082-521-A)



### 3-1-2. Precautions on Adjusting

This set is adjusted in two modes, VTR mode and CAMERA mode.

### 3-1-3. Adjusting Connectors

Some of the adjusting points of the video section are concentrated at VC-345 board CN1011. Connect the measuring instruments via I/F unit for LANC control (J-6082-521-A) and CPC jig connector (J-6082-539-A).

The following table shows the pin No. and signal name of CN1011.

Pin No.	Signal Name	Pin No.	Signal Name
1	EEP SCK	9	RF MON
2	8 mm PB RF	10	REG GND
3	BPF MONI	11	LANC OUT
4	CAP FG	12	LANC IN
5	SW DIR	13	XLANCPOWERON
6	REG GND	14	EEP SO
7	N. C.	15	EEP SI
8	REG GND	16	XCS EEP

**Table 6-3-1**

The following table lists the test point of I/F unit of for LANC control.

Pin No.	Signal Name	Pin No.	Signal Name
	BL	15	EVF VCO
14	EVF VG		BL 4.75
9	PB RF (MON)		
3	BPF MONI	6, 8, 10	GND
	TMS	7	REC RF (RF IN)
	TDI		TDO
5	SWP		TCK
4	CAP FG	2	IR VIDEO

**Note:** Pin No. are those of CN1011.

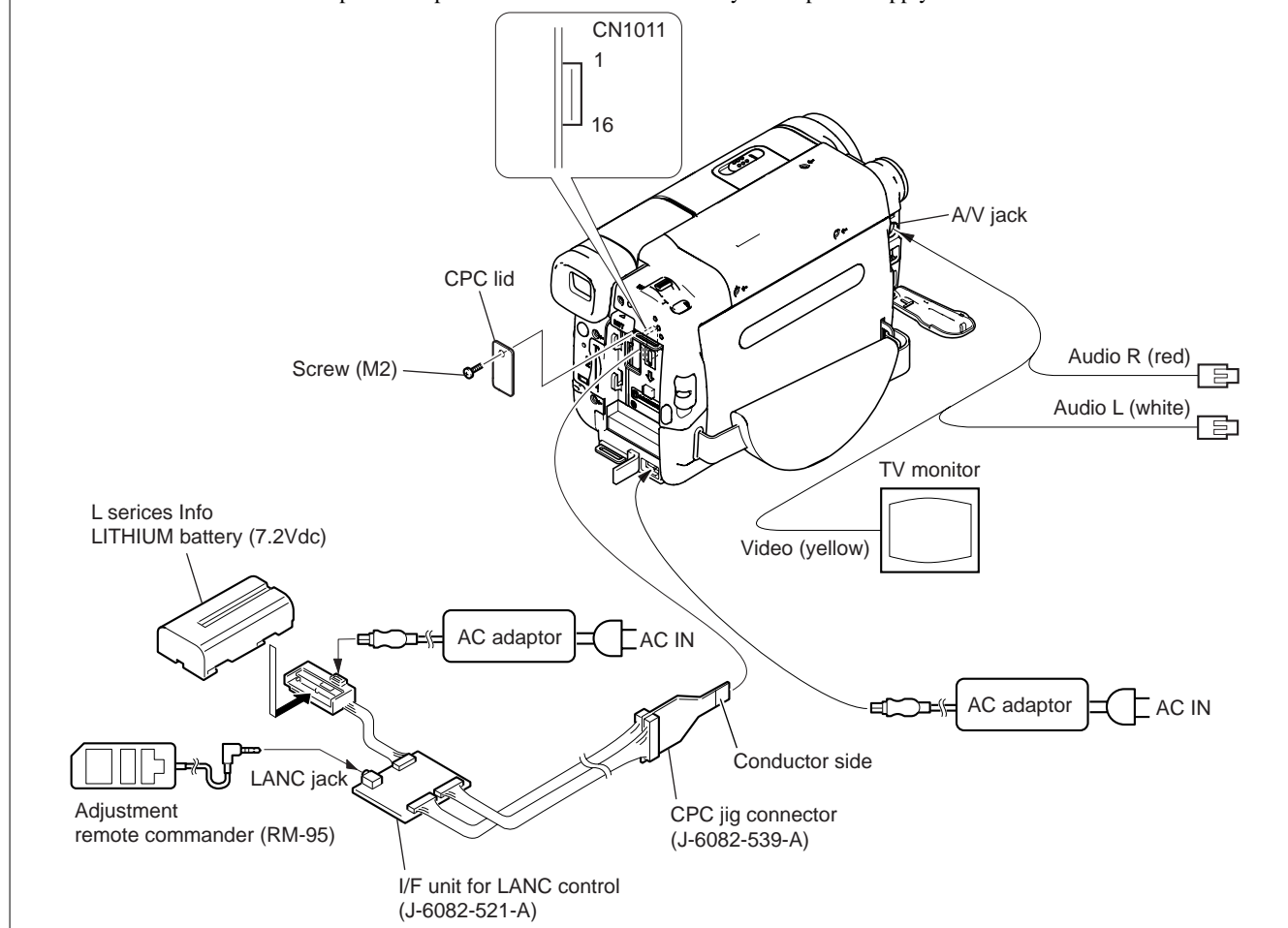
**Table 6-3-2**

### 3-1-4. Connecting the Equipment

Connect the measuring instruments as shown in Fig. 6-3-1 and perform the adjustments.

#### Connecting the TV Monitor and Adjustment Remote Commander

**Note:** Use either the AC power adaptor or the InfoLITHIUM battery as the power supply of I/F unit for LANC control.



**Fig. 6-3-1**

### 3-1-5. Alignment Tape

The following table lists alignment tapes which are available.  
Use the tape specified in the signal column for each adjustment. If the type of tape to be used for checking operations is not specified, use whichever type.

#### Digital8 alignment tape

Name	Usage
SW/OL standard (WR5-2D)	Switching position adjustment
Audio operation check (WR5-3ND (NTSC), WR5-3CD (PAL))	Audio system adjustment
System operation check (WR5-5ND (NTSC), WR5-5CD (PAL))	Operation check

#### Hi8/Standard8 alignment tape

Name	Recording mode	Tape type	Tape speed	Usage
Tracking (WR5-1NU (NTSC), WR5-1CU (PAL))	Standard8	MP	SP	Tape path adjustment, Switching position adjustment
Video frequency characteristics (WR5-10NM (NTSC), WR5-10CM (PAL))	Hi8	ME	SP (NTSC) LP (PAL)	Frequency characteristics adjustment
Operation check (WR5-5NSP (NTSC), WR5-5CSP (PAL))	Standard8	MP	SP	Operation check
Operation check (WR5-8NSE (NTSC), WR5-8CSE (PAL))	Hi8	ME	SP	
Operation check (WR5-4NL (NTSC), WR5-4CL (PAL))	Standard8	MP	LP	
Operation check (WR5-8NLE (NTSC), WR5-8CLE (PAL))	Hi8	ME	LP	
AFM stereo operation check WR5-9NS(NTSC), WR5-9CS(PAL)	Standard8	MP	SP	AFM stereo Operation check
BPF adjustment WR5-11NS(NTSC), WR5-11CS(PAL)	Standard8	MP	SP	BPF adjustment

Tape type

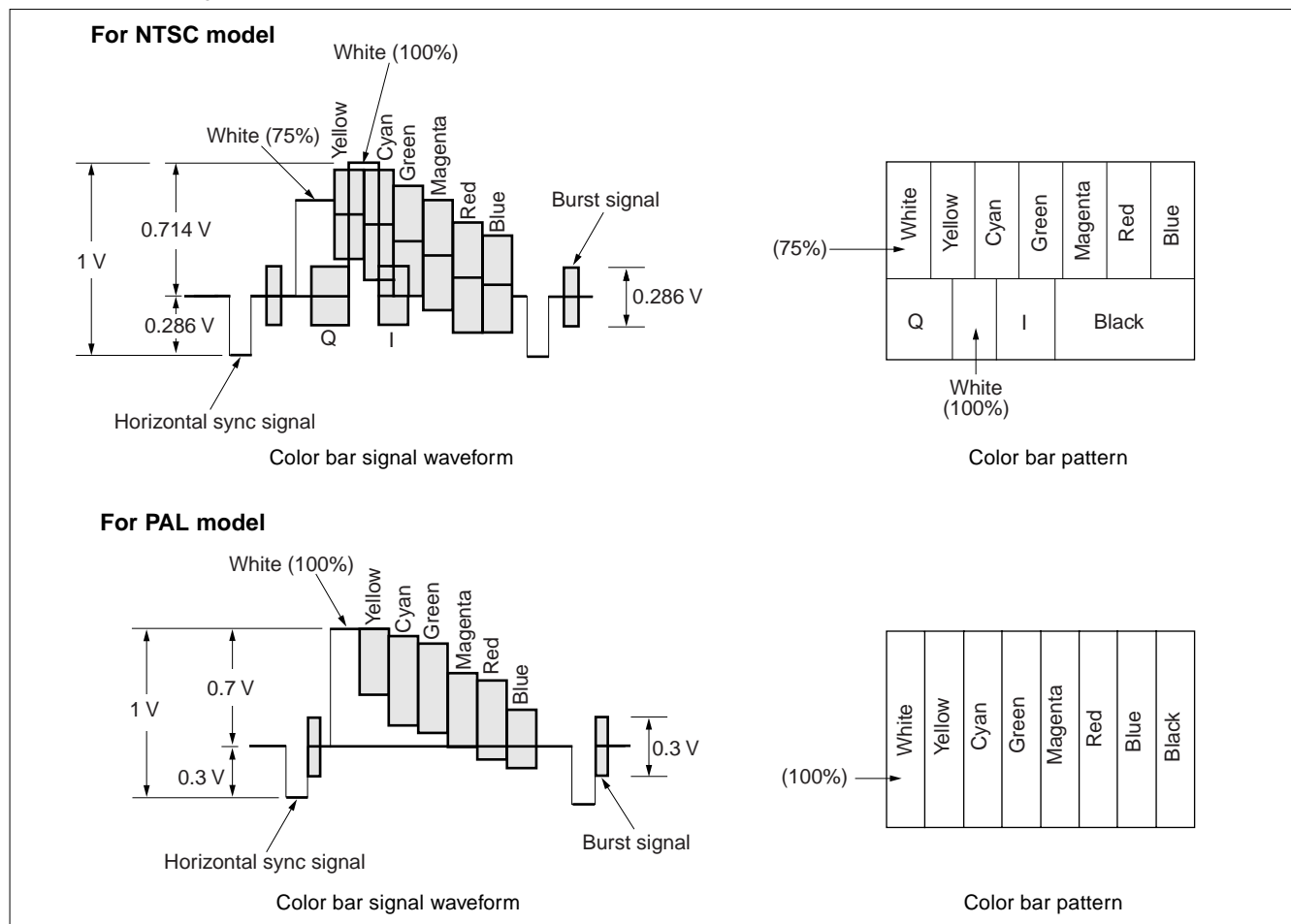
ME ..... Particle type metal tape

MP ..... Evaporated type metal tape

**Table 6-3-3**

Fig. 6-3-2 Shows the color bar signals recorded on the alignment tape.

**Note:** Measure using the VIDEO terminal (Terminated at 75  $\Omega$ ).



**Fig. 6-3-2 Color Bar Signal of the Alignment Tape**

### 3-1-6. Input/output Level and Impedance

#### Audio/Video input/output

##### AV MINIJACK

Video signal: 1 V<sub>p-p</sub>, 75 $\Omega$ (ohms),  
unbalanced, sync negative

Audio signal: 327 mV (at output impedance  
more than 47 k $\Omega$ (kilohms), Input impedance  
more than 47 k $\Omega$ (kilohms), Output impedance  
with less than 2.2 k $\Omega$ (kilohms)

## 3-2. SYSTEM CONTROL SYSTEM ADJUSTMENTS

### 1. Initialization of 8, A, B, C, D, E, F, 18, 1B, 1C, 1F Page Data

If the 8, A, B, C, D, E, F, 18, 1B, 1C, 1F page data is erased due to some reason, perform “1-2. INITIALIZATION OF 8, A, B, C, D, E, F, 18, 1B, 1C, 1F PAGE DATA” of “CAMERA SYSTEM ADJUSTMENTS”.

Check that the data of page: 0, address: 10 is “00”.

If not, select page: 0, address: 10, and set the data “00”.

### 2. Touch Panel Adjustment

Adjust the calibration of touch panel.

Mode	VTR stop (PLAY/EDIT mode)
Signal	No signal (LCD screen in a blue back state)
Adjustment Page	A
Adjustment Address	90 to 93

**Note 1:** Perform “1-4. LCD SYSTEM ADJUSTMENTS” before this adjustment.

**Note 2:** Check that the data of page: 0, address: 10 is “00”.

**Note 3:** Open the LCD screen and perform adjustment without inverting.

**Note 4:** Adjustment must be performed while observing the LCD screen from the front.

**Note 5:** Perform adjustment without inserting the Memory Stick.

#### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	5	01	01	
3	5	05	00	
4	5	06	C7	
5	5	07	00	
6	5	08	00	
7	5	09	00	
8	5	0A	FF	
9	5	0B	00	
10	5	0C	00	
11	5	0D	00	
12	5	0E	01	
13	5	00	01	Press PAUSE button.
14				Using a ball-point pen etc., push the center of “X” indicated in the part A.
15				Using a ball-point pen etc., push the center of “X” indicated in the part B.
16				Using a ball-point pen etc., push the center of “X” indicated in the part C.
17	0	01	00	

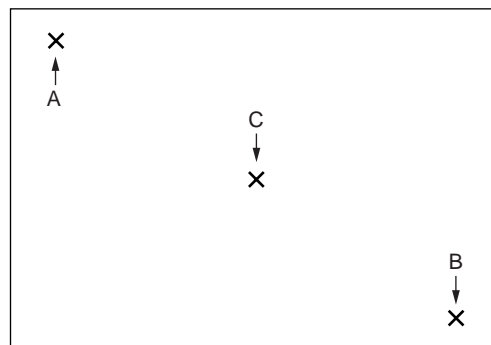


Fig. 6-3-3

### 3. Node Unique ID No. Input

**Note 1:** Perform “3-2. Input of Serial No.” if the data on page C has been cleared and the node unique ID No. is not found.

**Note 2:** Check that the data of page: 0, address: 10 is “00”.

#### 3-1. Input of Company ID

Write the company ID to the EEPROM (nonvolatile memory).

Page	C
Address	E0, E1, E2, E3, E4

##### Input method:

1) Select page: 0, address: 01, and set data: 01.

2) Select page: C, and enter the following data.

**Note 3:** Each time the data is set, press the PAUSE button on the adjusting remote commander.

Address	Data
E0	08
E1	00
E2	46
E3	01
E4	02

3) Select page: 0, address: 01, and set data: 00.

#### 3-2. Input of Serial No.

Write the serial No. and model code to the EEPROM (nonvolatile memory).

In writing the serial No., a decimal number should be converted into a hexadecimal number.

Page	C
Address	E5, E6, E7

1) Select page: 0, address: 01, and set data: 01.

2) Read the serial No. from the model name label, and it is assumed to be  $D_1$ .

Example: If serial No. is “77881”,  
 $D_1 = 77881$

3) From Table 6-3-4, obtain  $D_2$  and  $H_1$  that correspond to  $D_1$ .

Example: If  $D_1 = 77881$ ,  
 $D_2 = D_1 - 65536 = 12345$   
 $H_1 = FE$

$D_1$ (decimal)	$D_2$ (decimal)	$H_1$ (hexadecimal) (Service model code)
00001 to 65535	$D_1$	FE
65536 to 131071	$D_1 - 65536$	FE
131072 to 196607	$D_1 - 131072$	FE
196608 to 262143	$D_1 - 196608$	FE
262144 to 327679	$D_1 - 262144$	FE
327680 to 393215	$D_1 - 327680$	FE
393216 to 458751	$D_1 - 393216$	FE
458752 to 524287	$D_1 - 458752$	FE
524288 to 589823	$D_1 - 524288$	FE
589824 to 655359	$D_1 - 589824$	FE
655360 to 720895	$D_1 - 655360$	FE
720896 to 786431	$D_1 - 720896$	FE
786432 to 851967	$D_1 - 786432$	FE
851968 to 917503	$D_1 - 851968$	FE
917504 to 983039	$D_1 - 917504$	FE
983040 to 999999	$D_1 - 983040$	FE

**Table 6-3-4**

4) Enter  $H_1$  to address: E5 on page: C.

Example: If  $H_1 = FE$ ,

select page: C, address: E5, and set data: FE, then press the PAUSE button.

5) From Table 6-3-5, obtain the maximum decimal number less than  $D_2$ , and it is assumed to be  $D_3$ .

Example: If  $D_2 = 12345$ ,  
 $D_3 = 12288$

6) From Table 6-3-5, obtain a hexadecimal number that corresponds to  $D_3$ , and it is assumed to be  $H_3$ .

Example: If  $D_3 = 12288$ ,  
 $H_3 = 3000$

7) Calculate  $D_4$  using following equations (decimal calculation). ( $0 \leq D_4 \leq 225$ )

$D_4 = D_2 - D_3$   
 Example: If  $D_2 = 12345$  and  $D_3 = 12288$ ,  
 $D_4 = 12345 - 12288 = 57$

8) Convert  $D_4$  into a hexadecimal number to obtain  $H_4$ . (See Table 6-4-1 “Hexadecimal - decimal conversion table” in 6-4. Service Mode)

Example: If  $D_4 = 57$ ,  
 $H_4 = 39$

9) Enter higher two digits of  $H_3$  to address: E6 on page: C.

Example: If  $H_3 = 3000$ ,  
 select page: C, address: E6, and set data: 30, then press the PAUSE button.

10) Enter  $H_4$  to address: E7 on page: C.

Example: If  $H_4 = 39$ ,  
 select page: C, address: E7, and set data: 39, then press the PAUSE button.

11) Select page: 0, address: 01, and set data: 00.

D <sub>3</sub>	H <sub>3</sub>	D <sub>3</sub>	H <sub>3</sub>	D <sub>3</sub>	H <sub>3</sub>	D <sub>3</sub>	H <sub>3</sub>	D <sub>3</sub>	H <sub>3</sub>	D <sub>3</sub>	H <sub>3</sub>	D <sub>3</sub>	H <sub>3</sub>	D <sub>3</sub>	H <sub>3</sub>
0	0000	8192	2000	16384	4000	24576	6000	32768	8000	40960	A000	49152	C000	57344	E000
256	0100	8448	2100	16640	4100	24832	6100	33024	8100	41216	A100	49408	C100	57600	E100
512	0200	8704	2200	16896	4200	25088	6200	33280	8200	41472	A200	49664	C200	57856	E200
768	0300	8960	2300	17152	4300	25344	6300	33536	8300	41728	A300	49920	C300	58112	E300
1024	0400	9216	2400	17408	4400	25600	6400	33792	8400	41984	A400	50176	C400	58368	E400
1280	0500	9472	2500	17664	4500	25856	6500	34048	8500	42240	A500	50432	C500	58624	E500
1536	0600	9728	2600	17920	4600	26112	6600	34304	8600	42496	A600	50688	C600	58880	E600
1792	0700	9984	2700	18176	4700	26368	6700	34560	8700	42752	A700	50944	C700	59136	E700
2048	0800	10240	2800	18432	4800	26624	6800	34816	8800	43008	A800	51200	C800	59392	E800
2304	0900	10496	2900	18688	4900	26880	6900	35072	8900	43264	A900	51456	C900	59648	E900
2560	0A00	10752	2A00	18944	4A00	27136	6A00	35328	8A00	43520	AA00	51712	CA00	59904	EA00
2816	0B00	11008	2B00	19200	4B00	27392	6B00	35584	8B00	43776	AB00	51968	CB00	60160	EB00
3072	0C00	11264	2C00	19456	4C00	27648	6C00	35840	8C00	44032	AC00	52224	CC00	60416	EC00
3328	0D00	11520	2D00	19712	4D00	27904	6D00	36096	8D00	44288	AD00	52480	CD00	60672	ED00
3584	0E00	11776	2E00	19968	4E00	28160	6E00	36352	8E00	44544	AE00	52736	CE00	60928	EE00
3840	0F00	12032	2F00	20224	4F00	28416	6F00	36608	8F00	44800	AF00	52992	CF00	61184	EF00
4096	1000	12288	3000	20480	5000	28672	7000	36864	9000	45056	B000	53248	D000	61440	F000
4352	1100	12544	3100	20736	5100	28928	7100	37120	9100	45312	B100	53504	D100	61696	F100
4608	1200	12800	3200	20992	5200	29184	7200	37376	9200	45568	B200	53760	D200	61952	F200
4864	1300	13056	3300	21248	5300	29440	7300	37632	9300	45824	B300	54016	D300	62208	F300
5120	1400	13312	3400	21504	5400	29696	7400	37888	9400	46080	B400	54272	D400	62464	F400
5376	1500	13568	3500	21760	5500	29952	7500	38144	9500	46336	B500	54528	D500	62720	F500
5632	1600	13824	3600	22016	5600	30208	7600	38400	9600	46592	B600	54784	D600	62976	F600
5888	1700	14080	3700	22272	5700	30464	7700	38656	9700	46848	B700	55040	D700	63232	F700
6144	1800	14336	3800	22528	5800	30720	7800	38912	9800	47104	B800	55296	D800	63488	F800
6400	1900	14592	3900	22784	5900	30976	7900	39168	9900	47360	B900	55552	D900	63744	F900
6656	1A00	14848	3A00	23040	5A00	31232	7A00	39424	9A00	47616	BA00	55808	DA00	64000	FA00
6912	1B00	15104	3B00	23296	5B00	31488	7B00	39680	9B00	47872	BB00	56064	DB00	64256	FB00
7168	1C00	15360	3C00	23552	5C00	31744	7C00	39936	9C00	48128	BC00	56320	DC00	64512	FC00
7424	1D00	15616	3D00	23808	5D00	32000	7D00	40192	9D00	48384	BD00	56576	DD00	64768	FD00
7680	1E00	15872	3E00	24064	5E00	32256	7E00	40448	9E00	48640	BE00	56832	DE00	65024	FE00
7936	1F00	16128	3F00	24320	5F00	32512	7F00	40704	9F00	48896	BF00	57088	DF00	65280	FF00

**Note:** D<sub>3</sub>: Decimal  
H<sub>3</sub>: Hexadecimal

**Table 6-3-5**

### 3-3. SERVO AND RF SYSTEM ADJUSTMENTS

Before perform the servo and RF system adjustments, check that the specified values of “27 MHz Origin Oscillation Adjustment” of “VIDEO SYSTEM ADJUSTMENTS” is satisfied.

Check that the data of page: 0, address: 10 is “00”.

If not, select page: 0, address: 10, and set the data “00”.

#### Adjusting Procedure:

1. REEL FG adjustment
2. CAP FG duty adjustment
3. Digital8 switching position adjustment
4. SD error rate check
5. Hi8/Standard8 switching position adjustment (Note)

**Note:** DCR-TRV480/TRV480E only

#### 1. REEL FG Adjustment (VC-345 Board)

Compensates the dispersion of the hall elements.

Mode	VTR stop (PLAY/EDIT mode)
Signal	No signal
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjusting remote commander
Adjustment Page	C
Adjustment Address	17, 2F
Specified value	The data of page: 3, address: 03 is “00” or “01” or “04” or “05”

**Note 1:** Check that the data of page: 0, address: 10 is “00”.

#### Adjusting method:

Order	Page	Address	Data	Procedure
1				Close the cassette compartment without inserting cassette.
2	0	01	01	
3	3	01	1C	Press PAUSE button.
4	3	02		Check the data changes to “00”.
5	3	03		Check the data is “00” or “01” or “04” or “05”. (Note 2)
6	0	01	00	

**Note 2:** If the data is other value, adjustment has errors.

For the error contents, see the following table.

Data	Error contents
02, 03, 06, 07	T REEL is defective
08, 09, 0C, 0D	S REEL is defective
0A, 0B, 0E, 0F	T REEL and S REEL is defective

#### 2. CAP FG Duty Adjustment (VC-345 Board) (DCR-TRV480/TRV480E)

Set the CAP FG signal duty cycle to 50% to establish an appropriate capstan servo. If deviated, the uneven rotation of capstan and noise can occur in the LP mode.

Mode	VTR playback (PLAY/EDIT mode)
Signal	Hi8/Standard8 alignment tape: For checking operation (WR5-5NSP (NTSC)) (WR5-5CSP (PAL))
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjusting remote commander
Adjustment Page	C
Adjustment Address	16
Specified value	The data of page: 3, address: 03 is “00”

**Note 1:** Check that the data of page: 0, address: 10 is “00”.

#### Adjusting method:

Order	Page	Address	Data	Procedure
1				Insert the alignment tape and enter the VTR playback mode.
2	0	01	01	
3	3	01	81	Press PAUSE button.
4	3	02		Check the data changes to “00”.
5	3	03		Check the data is “00”. (Note 2)
6	0	01	00	

**Note 2:** If the data is other value, adjustment has errors.

For the error contents, see the following table.

Bit value of page: 3, address: 03	Error contents
bit0 = 1	Adjustment time out
bit1 = 1	No changed to Hi8/Standard8 mode

### 3. CAP FG Duty Adjustment (VC-345 Board)

Set the CAP FG signal duty cycle to 50% to establish an appropriate capstan servo. If deviated, the uneven rotation of capstan and noise can occur in the LP mode.

Mode	VTR stop (PLAY/EDIT mode)
Signal	No signal
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjusting remote commander
Adjustment Page	C
Adjustment Address	16
Specified value	The data of page: 3, address: 03 is "00"

**Note 1:** Check that the data of page: 0, address: 10 is "00".

#### Adjusting method:

Order	Page	Address	Data	Procedure
1				Close the cassette compartment without inserting cassette.
2	0	01	01	
3	3	01	1B	Press PAUSE button.
4	3	02		Check the data changes to "00".
5	3	03		Check the data is "00". (Note 2)
6	0	01	00	

**Note 2:** If the data is "01", adjustment has errors or the mechanism deck is defective.

### 4. Digital8 Switching Position Adjustment

To obtain normal playback waveform output, adjust the switching position.

Mode	VTR playback (PLAY/EDIT mode)
Signal	Digital8 alignment tape: SW/OL standard (WR5-2D)
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjusting remote commander
Adjustment Page	C
Adjustment Address	10, 11, 12, 13
Specified value	The data of page: 3, address: 03 is "00"

**Note 1:** Check that the data of page: 0, address: 10 is "00".

#### Adjusting method:

Order	Page	Address	Data	Procedure
1				Insert the SW/OL standard tape and enter the VTR stop mode.
2	0	01	01	
3	C	10	EE	Press PAUSE button.
4	3	21		Check the data is "02". (Note 2)
5	3	01	0D	Press PAUSE button.
6	3	02		Check the data changes to "00".
7	3	03		Check the data is "00". (Note 3, 4)
8	0	01	00	

**Note 2:** If the data is "72", the tape top being played. After playing the tape for 1 to 2 seconds, stop it, perform step 5 and higher.

If the data is "62", the tape end being played. After re-rewind the tape, perform step 5 and higher.

**Note 3:** If the data is not "00", select page: C, address: 21 and take a note of the data. Set data: 10, press the PAUSE button, then perform the adjustment again.

When the data does not become "00" even if the adjustment has been performed again, set back the data on page: C, address: 21.

**Note 4:** If bit0 of the data is "1", the EVEN channel is defective. If bit1 of the data is "1", the ODD channel is defective. Contents of the defect is see written into page: C, address: 10 and 12. See following table.

(For the bit values, refer to "6-4. SERVICE MODE", "4-3. 3. Bit Value Discrimination".)

If bit3 of the data is "1", the tape end being played. After rewinding the tape, perform the adjustment again.

#### When the EVEN channel is defective

Data of page: C, address: 10	Contents of defect
EE	Writing into EEP ROM (IC4502) is defective
E8	Adjustment data is out of range
E7	No data is returned from IC6001

#### When the ODD channel is defective

Data of page: C, address: 12	Contents of defect
E8	Adjustment data is out of range
E7	No data is returned from IC6001



## 5. SD Error Rate Check (LP)

### (VC-345 Board)

Checking the video error rate in LP mode, adjust the filter tap coefficient of IC6001.

Mode	VTR playback (PLAY/EDIT mode)
Signal	Recorded signal at "Preparations before adjustments"
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjusting remote commander
Adjustment Page	1C (Note 1)
Adjustment Address	B3 to C8
Specified value	The data of page: 3, address: 03 is "00"

**Note 1:** If reading/writing data on page 1C, set data: 01 to page: 0, address: 10, and then select page C. By this data setting, the page C can be selected.  
After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

#### Switch setting:

1) REC MODE (Menu display) ..... LP

#### Preparations before adjustment:

- 1) Set the camcorder to CAMERA mode (LP mode).
- 2) Record camera signal for a minute, and rewind tape.

#### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	A	1C		Set the bit value of bit3 is "0" and press PAUSE button. (Note 2)
3				Playback the recorded signal at "Preparations before adjustments".
4	3	01	40	Press PAUSE button.
5	3	02		Check the data changes to "00".
6	3	03		Check the data is "00". (Note 3)
7	A	1C		Set the following bit value, and press PAUSE button. (Note 2) bit3 is "1" (TRV480/TRV480E) bit3 is "0" (TRV380)
8	0	01	00	

**Note 2:** For the bit value, refer to "6-4. SERVICE MODE", "4-3. 3. Bit Value Discrimination".

**Note 3:** If the data is other value, adjustment has errors.  
For the error contents, see the following table.

Data	Error contents
01	Error rate of the EVEN channel exceeds the specified value
02	Error rate of the ODD channel exceeds the specified value
03	Error rate of the EVEN and ODD channels exceeds the specified value

## 6. Hi8/Standard8 Switching Position Adjustment (VC-345 Board) (DCR-TRV480/TRV480E)

If deviated in this case cause switching noise or jitter on the Hi8/Standard8 mode played back screen.

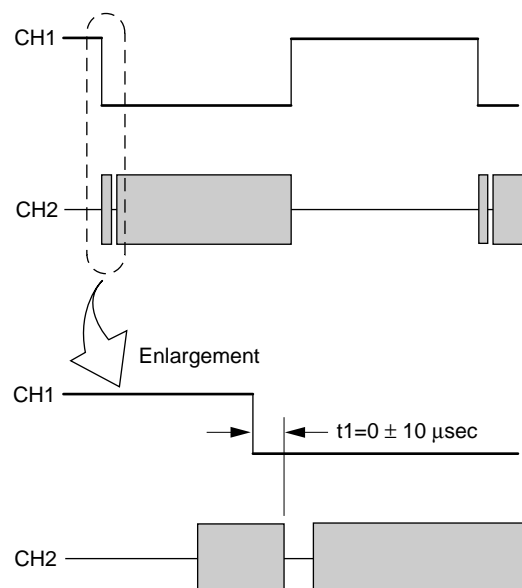
Mode	VTR playback (PLAY/EDIT mode)
Signal	Hi8/Standard8 alignment tape: For tracking adjustment (WR5-1NU (NTSC)) (WR5-1CU (PAL))
Measurement Point	CH1: SWP (Pin ⑤ of CN1011) CH2: IR VIDEO (Pin ② of CN1011)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	32, 33
Specified value	$t_1 = 0 \pm 10 \mu\text{sec}$

**Note 1:** Check that the data of page: 0, address: 10 is "00".

### Adjusting method:

Order	Page	Address	Data	Procedure
1				Insert the alignment tape and enter the VTR stop mode.
2	0	01	01	
3	3	92		Set the bit value of bit2 to "1", and press PAUSE button. (Note 2)
4				Set to the playback mode.
5	C	32		Change the data and minimize "t1". (Coarse adjustment)
6	C	32		Press PAUSE button.
7	C	33		Change the data and adjust so that the switching position (t1) becomes specified value. (Fine adjustment)
8	C	33		Press PAUSE button.
9	3	92		Set the bit value of bit2 to "0", and press PAUSE button. (Note 2)
10	0	01	00	

**Note 2:** For the bit value, refer to "6-4. SERVICE MODE", "4-3. 3. Bit Value Discrimination".



**Fig. 6-3-4**

3-4. VIDEO SYSTEM ADJUSTMENTS

Before performing the video system adjustments, check that the data of page: 0, address: 10 is “00”.  
If not, select page: 0, address: 10, and set data “00”.  
Video system adjustments must be performed in the following order.

Adjusting Procedure:

- 1. 27 MHz origin oscillation adjustment
- 2. Composite video out level adjustment
- 3. Hi8/Standard8 Y/C output level setting (Note)
- 4. Hi8/Standard8 AFC f<sub>0</sub> adjustment (Note)

**Note:** DCR-TRV480/TRV480E only

1. 27 MHz Origin Oscillation Adjustment  
(VC-345 Board)

Set the frequency of the clock for synchronization.  
If deviated, the synchronization will be disrupted and the color will become inconsistent.

Mode	CAMERA
Subject	Arbitrary
Measurement Point	Pin ⑩ of IC2201
Measuring Instrument	Frequency counter
Adjustment Page	F
Adjustment Address	10
Specified value	f = 13500000 ± 68 Hz

**Note:** Check that the data of page: 0, address: 10 is “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	F	10		Change the data and set the frequency (f) to the specified value.
3	F	10		Press PAUSE button.
4	0	01	00	

VC-345 BOARD (SIDE A)

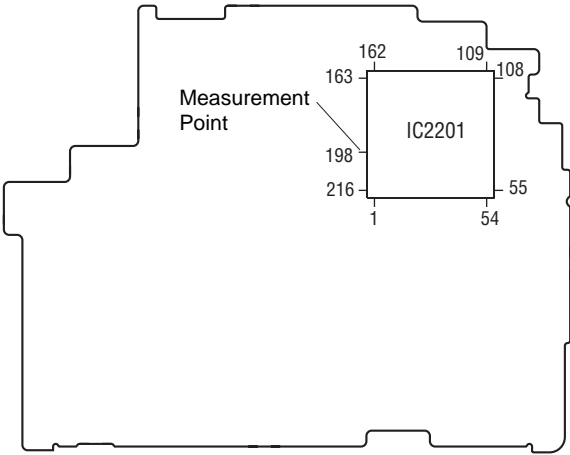


Fig. 6-3-5

## 2. Composite Video Out Level Adjustment (VC-345 Board)

Mode	CAMERA
Subject	Arbitrary
Measurement Point	Video terminal of A/V jack (75 $\Omega$ terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	25, 26, 27
Specified value	Sync level: $A = 1\text{ V} \pm 20\text{ mVp-p}$ (NTSC) $A = 1\text{ V} \pm 20\text{ mVp-p}$ (PAL) Cr level: $B = 714 \pm 14\text{ mVp-p}$ (NTSC) $B = 700 \pm 14\text{ mVp-p}$ (PAL) Cr level: $C = 714 \pm 14\text{ mVp-p}$ (NTSC) $C = 700 \pm 14\text{ mVp-p}$ (PAL) Burst level: $D = 286 \pm 6\text{ mVp-p}$ (NTSC) $D = 300 \pm 6\text{ mVp-p}$ (PAL)

**Note 1:** Check that the data of page: 0, address: 10 is "00".

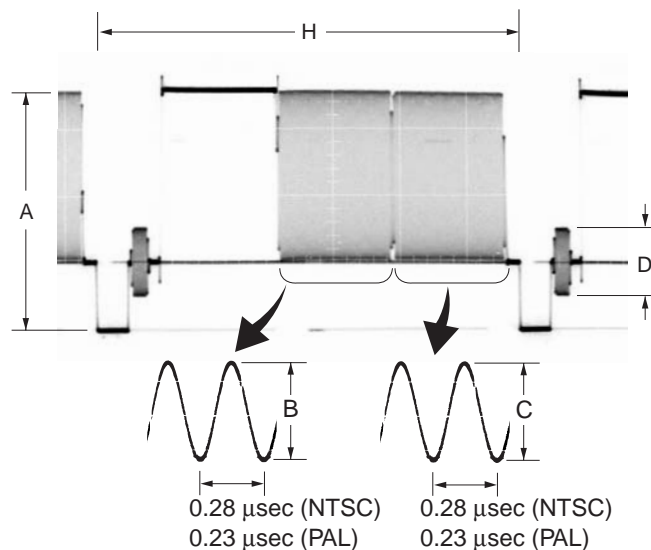
**Note 2:** NTSC model: DCR-TRV380/TRV480

PAL model: DCR-TRV480E

### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	8	A0		Set the bit value of bit 3 to "1", and press PAUSE button. (Note 3)
3	3	0C	02	Press PAUSE button.
4	C	25		Change the data and set the Y signal level (A) to the specified value.
5	C	25		Press PAUSE button.
6	C	26		Change the data and set the Cr signal level (B) to the specified value.
7	C	26		Press PAUSE button.
8	C	27		Change the data and set the Cb signal level (C) to the specified value.
9	C	27		Press PAUSE button.
10				Check the burst signal (D) to the specified value.
11	8	A0		Set the bit value of bit 3 to "0", and press PAUSE button. (Note 3)
12	3	0C	00	Press PAUSE button.
13	0	01	00	

**Note 3:** For the bit values, refer to "6-4. SERVICE MODE", "4-3. 3. Bit Value Discrimination".



**Fig. 6-3-6**

### 3. Hi8/Standard8 Y/C Output Level Setting

(VC-345 Board) (DCR-TRV480/TRV480E)

Set the Y/C signal output level during Hi8/Standard8 playback mode.

Mode	VTR stop (PLAY/EDIT mode)
Signal	No signal
Adjustment Page	C
Adjustment Address	35, 36

**Note 1:** Check that the data of page: 0, address: 10 is "00".

**Note 2:** Perform this adjustment when IC2201 or IC4502 is replaced.

#### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	A	10	02	Press PAUSE button.
3	3	9E	01	
4	3	A4		Check the data. When the data is "53", proceed to step 5. When the data is "03", proceed to step 8.
5	C	35		Set the following data and press PAUSE button. 69: NTSC model 65: PAL model
6	C	36		Set the following data and press PAUSE button. 64: NTSC model 72: PAL model
7				Proceed to step 10.
8	C	35	A0	Press PAUSE button.
9	C	36		Set the following data and press PAUSE button. AA: NTSC model B8: PAL model
10	3	9E	00	
11	A	10	00	Press PAUSE button.
12	0	01	00	

### 4. Hi8/Standard8 AFC f<sub>0</sub> Adjustment

(VC-345 Board) (DCR-TRV480/TRV480E)

Adjust the pull-in range of the clock generator (IC2201) for A/D conversion during Hi8/Standard8 playback.

Mode	VTR stop (PLAY/EDIT mode)
Signal	No signal
Measurement Point	Displayed data of page: 3, address: 9D
Measuring Instrument	Adjusting remote commander
Adjustment Page	C
Adjustment Address	34
Specified value	The data of page: 3, address: 9D is "7C" to "84".

**Note 1:** Check that the data of page: 0, address: 10 is "00".

#### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	C	34	30	Press PAUSE button.
3	A	10	02	Press PAUSE button.
4	3	0D	04	Press PAUSE button.
5	3	93	04	
6	3	9E	01	
7				Wait for 1.5 second.
8	3	01	82	Press PAUSE button. (Note 3)
9	3	02		Check the data changes to "00".
10	3	03		Check the data is "00".
11	3	9D		Check that the data satisfied the specified value.
12	3	0D	00	Press PAUSE button.
13	3	93	00	
14	3	9E	00	
15	A	10	00	Press PAUSE button.
16	0	01	00	

**Note 2:** For the bit value, refer to "6-4. SERVICE MODE", "4-3. 3. Bit Value Discrimination".

**Note 3:** The adjustment data will be automatically input to page: C, address: 34.

### 3-5. AUDIO SYSTEM ADJUSTMENTS

Before performing the audio system adjustments, check that the data of page: 0, address: 10 is "00".

If not, select page: 0, address: 10, and set data "00".

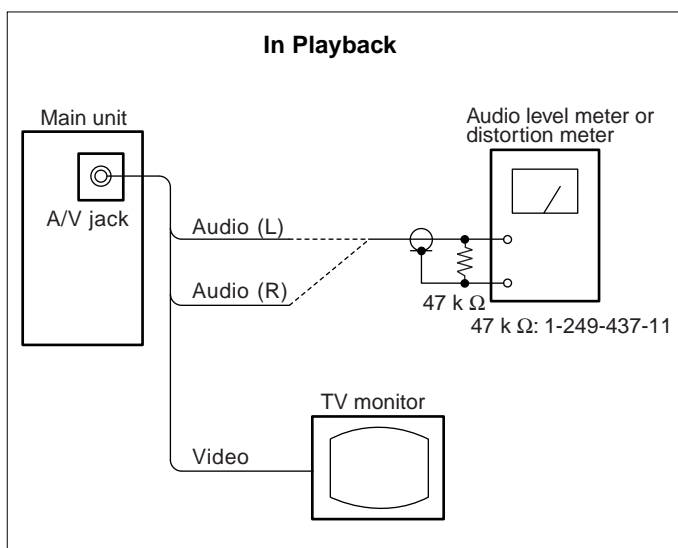
#### [Connecting the measuring instruments for the audio]

Connect the audio system measuring instruments in addition to the video system measuring instruments as shown in Fig. 6-3-7.

#### [Adjustment Procedure]

- 1) Hi8/Standard8 AFM BPF  $f_0$  adjustment (Note)
- 2) Hi8/Standard8 AFM 1.5 MHz deviation adjustment (Note)
- 3) Hi8/Standard8 AFM 1.7 MHz deviation adjustment (Note)
- 4) Digital8 playback level check

**Note:** DCR-TRV480/TRV480E only



**Fig. 6-3-7**

#### 1. Hi8/Standard8 AFM BPF $f_0$ Adjustment (VC-345 Board) (DCR-TRV480/TRV480E)

Sets the BPF passing frequency of IC5401 so that the AFM signal can separate from the playback RF signal properly. If deviated, the mono/stereo mode will be differentiated incorrectly, and noises and distortions will increase during high volume playback.

Mode	Playback (PLAY/EDIT mode)
Signal	Hi8/Standard alignment tape: For BPF adjustment (WR5-11NS (NTSC)) (WR5-11CS (PAL))
Measurement Point	Audio left or right terminal of A/V jack
Measuring Instrument	Distortion meter
Adjustment Page	C
Adjustment Address	3A
Specified Value	The Main and Sub channel distortion rate should be almost the same (within $\pm 1\%$ ) and minimum.

**Note:** Check that the data of page: 0, address: 10 is "00".

#### Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Set the MULTI sound switch (menu display) to "2".
- 3) Select page: C, address: 3A, change the data and minimize the distortion rate.
- 4) Press the PAUSE button of the adjustment remote commander.
- 5) Set the MULTI sound switch (menu display) to "1".
- 6) Select page: C, address: 3A, change the data and minimize the distortion rate.
- 7) Press the PAUSE button of the adjustment remote commander.
- 8) Repeat steps 2) to 7) and set the data of address: 3A so that the distortions rates when the MULTI sound switch is set to "2" and set to "1" respectively are almost the same and minimum.
- 9) Press the PAUSE button of the adjustment remote commander.
- 10) Select page: 0, address: 01, and set data: 00.
- 11) Set the MULTI sound switch to "STEREO".

## 2. Hi8/Standard8 AFM 1.5 MHz Deviation Adjustment (VC-345 Board) (DCR-TRV480/TRV480E)

Adjust to the optimum 1.5 MHz audio FM signal deviation.  
If the adjustment is not correct, its playback level will differ from that of other units.

Mode	Playback (PLAY/EDIT mode)
Signal	Hi8/Standard8 alignment tape: For checking AFM stereo operation Monoscope section (WR5-9NS (NTSC)) (WR5-9CS (PAL))
Measurement Point	Audio left or right terminal of A/V jack
Measuring Instrument	Audio level meter
Adjustment Page	C
Adjustment Address	38
Specified Value	$-7.5 \pm 2.0$ dBs

**Note 1:** Perform “Hi8/Standard8 AFM BPF f<sub>0</sub> Adjustment” before this adjustment.

**Note 2:** Check that the data of page: 0, address: 10 is “00”.

### Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Set the MULTI sound switch (menu display) to “1”.
- 3) Select page: C, address: 38, change the data and set the 400 Hz signal level to the specified value.
- 4) Press the PAUSE button.
- 5) Set the MULTI sound switch (menu display) to “STEREO”.
- 6) Select page: 0, address: 01, and set data: 00.

## 3. Hi8/Standard8 AFM 1.7 MHz Deviation Adjustment (VC-345 Board) (DCR-TRV480/TRV480E)

Adjust to the optimum 1.7 MHz audio FM signal deviation.  
If improper, this causes deteriorated separation (with stereo signal).

Mode	Playback (PLAY/EDIT mode)
Signal	Hi8/Standard8 alignment tape: For checking AFM stereo operation Monoscope section (WR5-9NS (NTSC)) (WR5-9CS (PAL))
Measurement Point	Audio left or right terminal of A/V jack
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	39
Specified Value	$-7.5 \pm 2.0$ dBs

**Note 1:** Perform “Hi8/Standard8 AFM BPF f<sub>0</sub> Adjustment” before this adjustment.

**Note 2:** Check that the data of page: 0, address: 10 is “00”.

### Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Set the MULTI sound switch (menu display) to “2”.
- 3) Select page: C, address: 39, change the data and set the 1 kHz signal level to the specified value.
- 4) Press the PAUSE button.
- 5) Set the MULTI sound switch (menu display) to “STEREO”.
- 6) Select page: 0, address: 01, and set data: 00.

## 4. Digital8 Playback Level Check

Mode	VTR playback (PLAY/EDIT mode)
Signal	Digital8 alignment tape: For audio operation check (WR5-3ND (NTSC)) (WR5-3CD (PAL))
Measurement Point	Audio left or right terminal of A/V jack
Measuring Instrument	Audio level meter or oscilloscope
Specified Value	32 kHz mode: 1 kHz, + 3 dBs $\pm$ 2 dB (2.46 V <sub>p-p</sub> to 3.89 V <sub>p-p</sub> )
	48 kHz mode: 1 kHz, + 3 dBs $\pm$ 2 dB (2.46 V <sub>p-p</sub> to 3.89 V <sub>p-p</sub> )
	44.1 kHz mode (EMP OFF): 7.35 kHz, + 2 dBs $\pm$ 2 dB (2.19 V <sub>p-p</sub> to 3.47 V <sub>p-p</sub> )
	44.1 kHz mode (EMP ON): 7.35 kHz, – 2.5 dBs $\pm$ 1.3 dB (1.4 V <sub>p-p</sub> to 1.9 V <sub>p-p</sub> )

### Checking method:

- 1) Check that the playback signal level is the specified value.

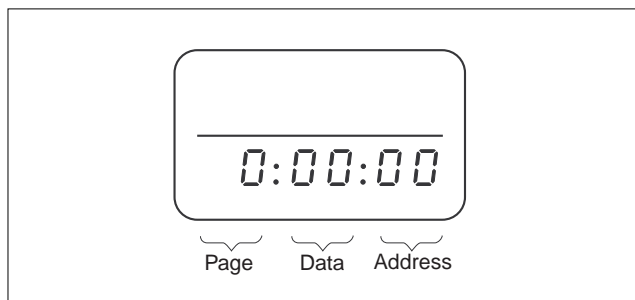
## 6-4. SERVICE MODE

### 4-1. ADJUSTMENT REMOTE COMMANDER

The adjustment remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjustment remote commander performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

#### 1. Using the Adjustment Remote Commander

- 1) Connect the adjustment remote commander to CN1011 of VC-345 board via I/F unit for LANC control (J-6082-521-A) and CPC jig connector (J-6082-539-A).
- 2) Set the HOLD switch of the adjustment remote commander to "HOLD" (SERVICE position). If it has been properly connected, the LCD on the adjustment remote commander will display as shown in Fig. 6-4-1.



**Fig. 6-4-1**

- 3) Operate the adjustment remote commander as follows.
  - Changing the page  
The page increases when the EDIT SEARCH+ button is pressed, and decreases when the EDIT SEARCH- button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
LCD Display	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal notation conversion value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

- Changing the address  
The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.
  - Changing the data (Data setting)  
The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed. There are altogether 256 data, from 00 to FF.
  - Writing the adjustment data  
The PAUSE button must be pressed to write the adjustment data in the nonvolatile memory. (The new adjusting data will not be recorded in the nonvolatile memory if this step is not performed)
- 4) After completing all adjustments, turn off the main power supply (8.4 V) once.

#### 2. Precautions Upon Using the Adjustment Remote Commander

Mishandling of the adjustment remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.



## 4-2. DATA PROCESS

The calculation of the DDS display and the adjustment remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Indicates the hexadecimal-decimal conversion table.

Hexadecimal-decimal Conversion Table																	②
Lower digit of hexadecimal Upper digit of hexadecimal	0	1	2	3	4	5	6	7	8	9	A (H)	B (h)	C (c)	D (d)	E (E)	F (F)	
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	
4	64	65	66	67	68	69	70	71	72	73	74	77	76	77	78	79	
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	
A (H)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	
① B (h)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	

**Note:** The characters shown in the parenthesis ( ) shown the display on the adjustment remote commander.

**(Example)** If the DDS display or the adjustment remote commander shows BD (h d);  
Because the upper digit of the adjustment number is B (h), and the lower digit is D (d), the meeting point “189” of ① and ② in the above table is the corresponding decimal number.

Table 6-4-1

### 4-3. SERVICE MODE

#### Additional note on adjustment

**Note 1:** If reading/writing data on page 18, 1C, set data: 01 to page: 0, address: 10, and then select page 8, C. By this data setting, the page 18, 1C can be selected.

After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

**Note 2:** After the completion of the all adjustments, cancel the service mode by either of the following ways.

- 1) After data on page: A, 18, 1C is restored, press the RESET button and unplug the main power supply. (In this case, date and time and menu setting have been set by users are canceled. Perform resetting)
- 2) After data on page: A, 18, 1C is restored, select page: 0, address: 01, and return the data to 00. And when data on page: 7 is changed, return data to the original condition.

#### 1. Setting the Test Mode

Page 18	Address 12
---------	------------

Data	Function
00	Normal
01	Test mode (Hi8/Standard8 mode) Various emergency prohibitions and releases Drum emergency, capstan emergency, loading motor emergency, reel emergency, tape top and end, DEW detection

Page 1C	Address 09
---------	------------

Data	Function
FF	Normal
00	Test mode (Digital8 mode) Various emergency prohibitions and releases Drum emergency, capstan emergency, loading motor emergency, reel emergency, tape top and end, DEW detection

Page A	Address 10
--------	------------

Data	Function
00	Normal
01	Forced camera power ON
02	Forced VTR power ON
03	Forced camera + VTR power ON
05	Forced memory power ON

- Before setting the data, select page: 0, address: 01, and set data: 01.
- For page A, 18, 1C the data set will be recorded in the non-volatile memory by pressing the PAUSE button of the adjustment remote commander. In this case, take note that the test mode will not be exited even when the main power is turned off (8.4 Vdc).
- After completing adjustments/repairs, be sure to return the data of this address to 00, and press the PAUSE button of the adjustment remote commander. And select page: 0, address: 01, and set data: 00.

### 2. Emergence Memory Address

#### 2-1. C Page Emergence Memory Address

Page C	Address F4 to FF
--------	------------------

Address	Contents
F4	EMG code when first error occurs
F6	Upper: MSW code when shift starts when first error occurs Lower: MSW code when first error occurs
F7	Lower: MSW code to be moved when first error occurs
F8	EMG code when second error occurs
FA	Upper: MSW code when shift starts when second error occurs Lower: MSW code when second error occurs
FB	Lower: MSW code to be moved when second error occurs
FC	EMG code when last error occurs
FE	Upper: MSW code when shift starts when last error occurs Lower: MSW code when last error occurs
FF	Lower: MSW code to be moved when last error occurs

When no error occurs in this unit, data "00" is written in the above addresses (F4 to FF). when first error occurs in the unit, the data corresponding to the error is written in the first emergency address (F4 to F7). In the same way, when the second error occurs, the data corresponding to the error is written in the second emergency address (F8 to FB).

Finally, when the last error occurs, the data corresponding to the error is written in the last emergency address (FC to FF).

**Note:** After completing adjustments, be sure to initialize the data of addresses F4 to FF to "00".

#### Initializing method:

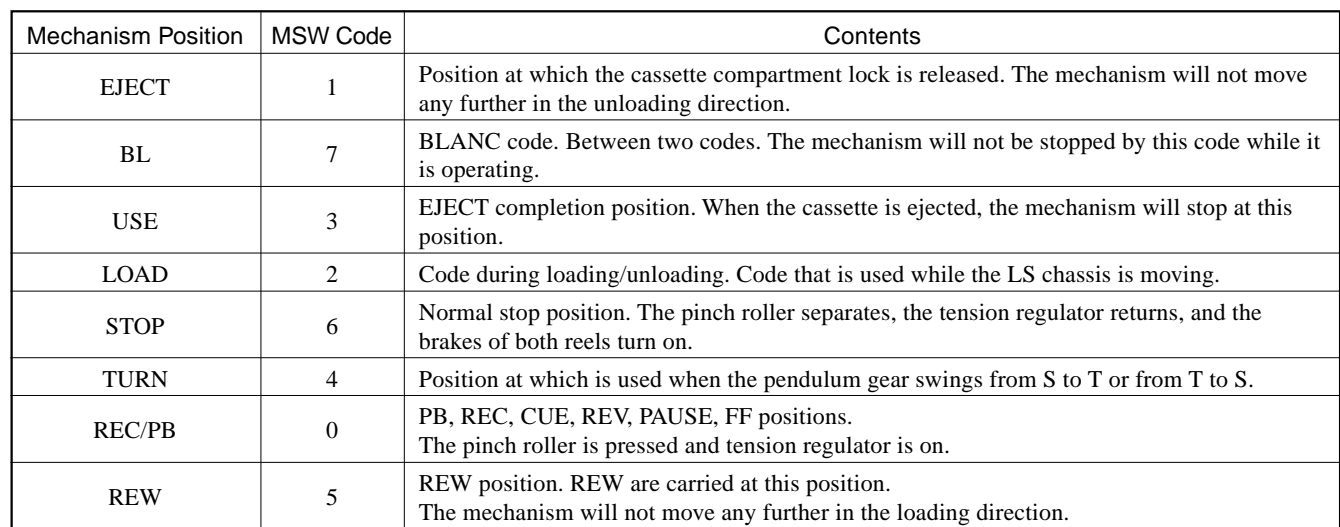
Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	01	37	Press PAUSE button.
3	3	02		Check the data changes to "00".
4	0	01	00	

## 2-2. EMG Code (Emergency Code)

Codes corresponding to the errors which occur are written in C page, addresses F4, F8 and FC. The type of error indicated by the code are shown in the following table.

Code	Emergency Type
00	No error
10	Loading motor emergency during loading
11	Loading motor emergency during unloading
22	T reel emergency during normal rotation
23	S reel emergency during normal rotation
24	T reel emergency (Short circuit between S reel terminal and T reel terminal)
30	FG emergency at the start up of the capstan
40	FG emergency at the start up of the drum
42	FG emergency during normal rotation of the drum

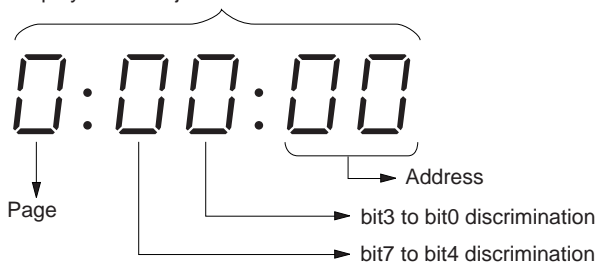
- The lower parts of the data of C page, addresses F6, FA and FE represent the MSW codes (mode switch mechanism position) when errors occurs.
- The upper parts of the data of C page, addresses F6, FA and FE represent, when the mechanism position is to be moved, the MSW codes at the start movement (when moving the loading motor).
- The lower parts of the data of C page, addresses F7, FB and FF represent the MSW codes of the desired movement when the mechanism position is to be moved.



### 3. Bit Value Discrimination

Bit values must be discriminated using the display data of the adjustment remote commander for the following items. Use the table below to discriminate if the bit value is "1" or "0".

Display on the adjustment remote commander



(Example) If the remote commander display is "8E", bit value from bit 7 to bit 4 can be discriminated from the column ①, and those from bit 3 to bit 0 from column ②.

Display on the adjustment remote commander	Bit values			
	bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
① 8	1	0	0	0
9	1	0	0	1
A (H)	1	0	1	0
B (h)	1	0	1	1
C (L)	1	1	0	0
D (d)	1	1	0	1
② E (E)	1	1	1	0
F (F)	1	1	1	1

### 4. Switch Check (1)

Page 2	Address 81
--------	------------

**Note:** Check that the data of page: 0, address: 10 is "00".

Bit	Function	When bit value = 1	When bit value = 0
0	POWER SW (SS-5100 block S004)	ON	OFF
1	MODE SW (SS-5100 block S004)	ON	OFF
2			
3	EJECT SW (SS-5100 block S002)	ON	OFF
4	CC DOWN SW (Mechanism chassis)	ON (DOWN)	OFF (UP)
5	BATT INFO/DISPLAY SW (CF-5100 block S001)	ON	OFF
6			
7			

**Using method:**

- 1) Select page: 2, address: 81.
- 2) By discriminating the bit value of display data, the state of the switches can be discriminated.

### 5. Switch Check (2)

Page 7	Address F3
--------	------------

**Note:** Check that the data of page: 0, address: 10 is "00".

Bit	Function	When bit value = 1	When bit value = 0
3	A/V jack (SI-041 board)	Used	Not used

**Using method:**

- 1) Select page: 7, address: F3.
- 2) By discriminating the bit value of display data, the state of the switch can be discriminated.

## 6. Switch Check (3)

Page 7	Address 65 to 6B
--------	------------------

**Note:** Check that the data of page: 0, address: 10 is “00”.

### Using method:

- 1) Select page: 7, address: 65 to 6B.
- 2) By discriminating the display data, the pressed key can be discriminated.

Address	Data							
	00 to 0C	0D to 26	27 to 43	44 to 63	64 to 8A	8B to B6	B7 to E6	E7 to FF
65 (KYE AD0) (IC5701 ⑬)						EASY (CF-5100 block) (S022)	PANEL CLOSE (CF-5100 block) (S023)	PANEL OPEN (CF-5100 block) (S023)
66 (KYE AD1) (IC5701 ⑭)				BACK LIGHT (CF-5100 block) (S019)	VIDEO LIGHT (CF-5100 block) (S020)			
67 (KYE AD2) (IC5701 ⑮)								
68 (KYE AD3) (IC5701 ⑯)								
69 (KYE AD4) (IC5701 ⑰)		2nd REC S/S (SB-9000 block) (S003)		2nd ZOOM W (SB-9000 block) (S002)		2nd ZOOM T (SB-9000 block) (S001)	PANEL REVERSE (PR-5100 block) (S601)	PANEL NORMAL (PR-5100 block) (S601)
6A (KYE AD5) (IC5701 ⑱)	PHOTO (START) (SS-5100 block) (S003)	PHOTO (FREEZ) (SS-5100 block) (S003)						
6B (KYE AD6) (IC5701 ⑲)	START/STOP (SS-5100 block) (S003)							

## 7. LED, IR Light Check

Page 7	Address 00, 01 and 04
--------	-----------------------

**Note:** Check that the data of page: 0, address: 10 is “00”.

### Using method:

- 1) Set the unit to camera mode.
- 2) Select page: 7, address: 01, set data: 90.
- 3) Select page: 7, address: 04, set data: 01.
- 4) Select page: 7, address: 00, set data: 01, and press the PAUSE button.
- 5) Check that all LED are lit, and that the IR light is lit.
- 6) Select page: 7, address: 04, set data: 00.
- 7) Select page: 7, address: 00, set data: 01, and press the PAUSE button.

## 8. Video Light Check

Page 7	Address 00, 01 and 04
--------	-----------------------

### Using method:

- 1) Set the unit to camera mode.
- 2) Select page: 7, address: 01, set data: 91.
- 3) Select page: 7, address: 04, set data: 01.
- 4) Select page: 7, address: 00, set data: 01, and press the PAUSE button.
- 5) Check that the video light is lit.
- 6) Select page: 7, address: 04, set data: 00.
- 7) Select page: 7, address: 00, set data: 01, and press the PAUSE button.

## 9. Record of Use Check

Page 7	Address A7 to A9, C8 to CF
--------	----------------------------

Address	Function		Remarks
A7	Drum rotation	Hour	10000th place digit and 1000th place digit of counted time (decimal digit)
A8	counted time	Hour	1000th place digit and 100th place digit of counted time (decimal digit)
A9	(BCD code)	Hour	10th place digit and 1st place digit of counted time (decimal digit)
C8	User initial power	Year	After setting the clock, set the date of power on next
C9	on date	Month	
CA	(BCD code)	Day	
CB	Final condensation	Year	
CC	occurrence date	Month	
CD	(BCD code)	Day	
CE	Video light	Hour (L)	10th place digit and 1st place digit of counted time (decimal digit)
CF	counted time (BCD code)	Hour (H)	1000th place digit and 100th place digit of counted time (decimal digit)

### Using method:

- 1) The record of use data is displayed at page: 7, addresses: A7 to A9 and C8 to CF.

**Note 1:** This data will be kept even if the lithium battery (CONTROL KEY BLOCK (CF-5100): BT001) is removed.

**Note 2:** When the drum was replaced, initialize the drum rotation counted time.

**Note 3:** When replacing the video light, initialize the data of address: CE and CF.

### Initializing method of drum rotation counted time:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 7, address: A7, set data: 00, and press the PAUSE button.
- 3) Select address: A8 and A9 and set data "00" into them in the same way as in address: A7.
- 4) Select page: 0, address: 01, and set data: 00.

## 10. Record of Self-diagnosis Check

Page 7	Address B0 to C6
--------	------------------

Address	Self-diagnosis code
B0	“Repaired by” code (Occurred 1st time) *1
B1	“Block function” code (Occurred 1st time)
B2	“Detailed” code (Occurred 1st time)
B4	“Repaired by” code (Occurred 2nd time) *1
B5	“Block function” code (Occurred 2nd time)
B6	“Detailed” code (Occurred 2nd time)
B8	“Repaired by” code (Occurred 3rd time) *1
B9	“Block function” code (Occurred 3rd time)
BA	“Detailed” code (Occurred 3rd time)
BC	“Repaired by” code (Occurred 4th time) *1
BD	“Block function” code (Occurred 4th time)
BE	“Detailed” code (Occurred 4th time)
C0	“Repaired by” code (Occurred 5th time) *1
C1	“Block function” code (Occurred 5th time)
C2	“Detailed” code (Occurred 5th time)
C4	“Repaired by” code (Occurred the last time) *1
C5	“Block function” code (Occurred the last time)
C6	“Detailed” code (Occurred the last time)

\*1 : “01” → “C”, “03” → “E”

### Using method:

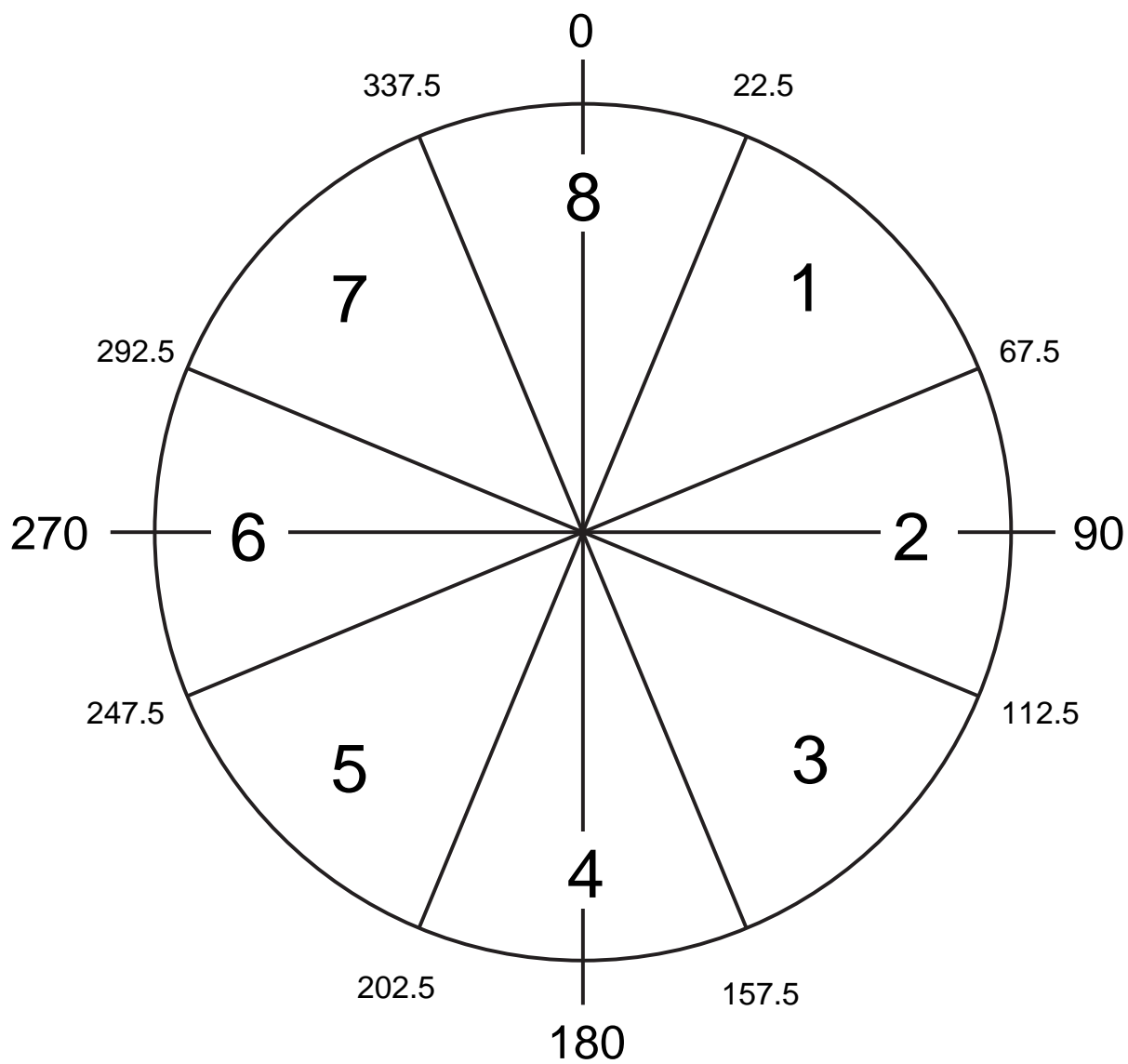
- 1) The past self-diagnosis codes are displayed at page: 7, address: B0 to C6. Refer to “SELF-DIAGNOSIS FUNCTION” for detail of the self-diagnosis code.

**Note:** This data will be kept even if the lithium battery (CONTROL KEY BLOCK (CF-5100): BT001) is removed.



## FOR CAMERA OPTICAL AXIS ADJUSTMENT

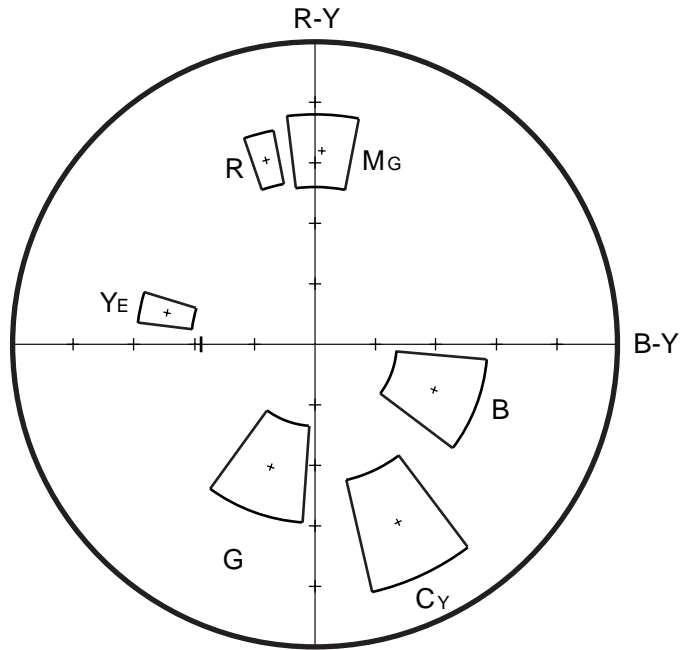
Take a copy of CAMERA OPTICAL AXIS  
FRAME with a clear sheet for use.



**FOR CAMERA COLOR REPRODUCTION ADJUSTMENT**

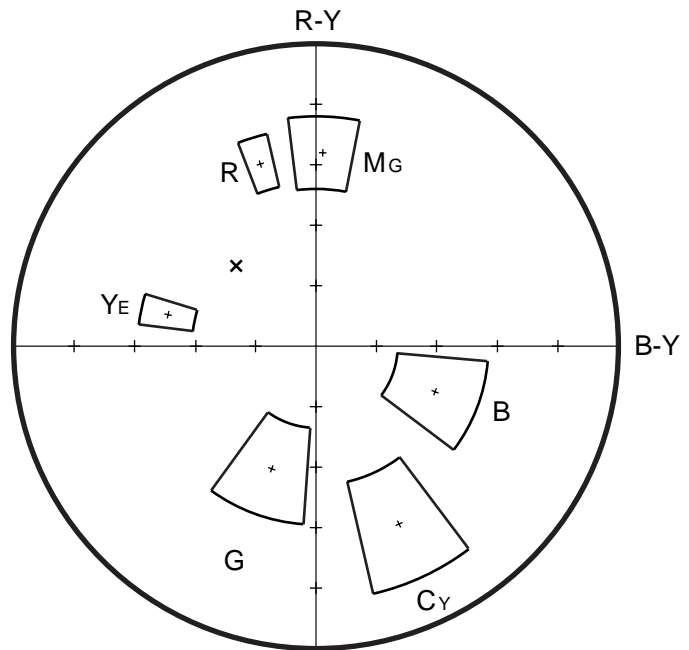
Take a copy of CAMERA COLOR  
REPRODUCTION FRAME with a  
clear sheet for use.

**For NTSC model**



DCR-TRV380/TRV480

**For PAL model**



DCR-TRV480E

## Revision History

Ver.	Date	History	Contents	S.M. Rev. issued
1.0	2004.11	Official Release	—	—

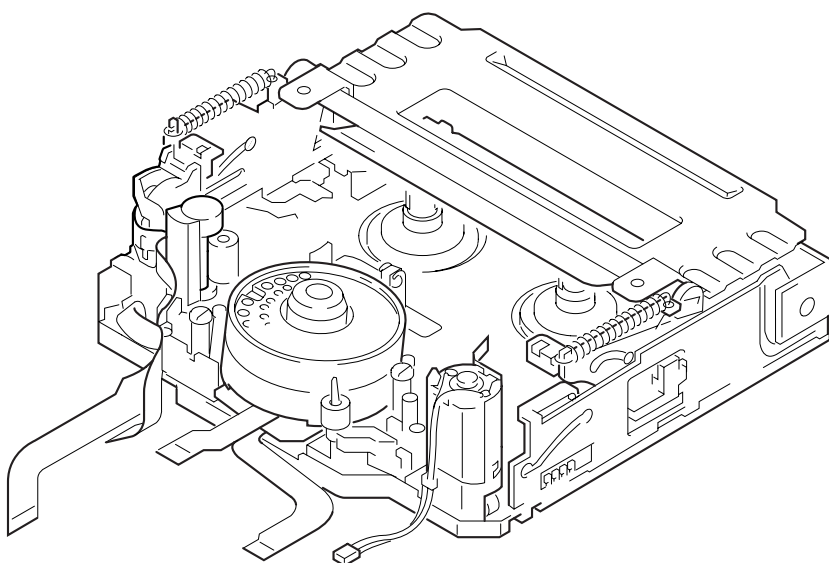
# 8mm Video MECHANICAL ADJUSTMENT MANUAL IX

Ver 1.0 2000. 12

## M2000 MECHANISM



Please use this manual with the service manual of the respective models.



**Digital 8 MECHANISM DECK**

**SONY®**

## TABLE OF CONTENTS

### 1. Preparations for Check, Adjustment and Replacement of Mechanism Block

- 1-1. Service Jigs and Tools ..... 3
- 1-2. Mode Selector II Operating Procedure ..... 5

### 2. Periodic Inspection and Maintenance

- 2-1. Rotary Drum Cleaning ..... 9
- 2-2. Tape Path System Cleaning ..... 9
- 2-3. Periodic Inspection List ..... 10
- 2-4. Applying Oil and Grease ..... 10

### 3. Before Replacement, Check or Adjustment

- 3-1. Phase Adjustment ..... 11
- 3-2. Cassette compartment assembly ..... 12

### 4. Check, Adjustment and Replacement

- 4-1. Drum Assembly ..... 14
- 4-2. HCL Arm Assembly, Loading Motor Assembly ..... 15
- 4-3. Drum Base Assembly, Drum Earth ..... 16
- 4-4. Guide Rail T2, Capstan Motor ..... 17
- 4-5. Blind Plate, Lock Guide ..... 18
- 4-6. Reel Table (T) Assembly, T Soft Assembly ..... 19
- 4-7. S Ratchet RE Plate, Cassette Guide S ..... 20
- 4-8. R Drive Gear Assembly, LS Cam Plate ..... 21
- 4-9. LS Cam Plate Position Adjustment ..... 22
- 4-10. LS Chassis Block Assembly ..... 23
- 4-11. TG7 Arm Block Assembly, Pinch Arm Assembly ..... 24
- 4-12. Guide Base (T) Block Assembly,  
Guide Base (S) Block Assembly ..... 25
- 4-13. TG1 Arm, Reel Table (S) Assembly, Push Switch (3Key) · 26
- 4-14. Hall Element (H001, H002 (T/S Reel)),  
Photo Transistor (Q001, Q002 (Tape Top/Tape End)),  
LED (D001 (Tape LED)) ..... 27
- 4-15. LS Guide Roller, Guide Lock Plate (T),  
Pinch Pusher Assembly, Eject Arm ..... 28
- 4-16. Rotary Switch, Cam Relay Gear,  
Change Gear Assembly, Timing Belt ..... 29
- 4-17. Guide Gear Assembly, Guide Gear T Assembly,  
Cam Relay Gear 1, Guide Lock Plate (S) ..... 30
- 4-18. LD Gear 4, Cam Gear 1, HC Drive Arm ..... 31
- 4-19. M Slide Plate Assembly, LS Arm Assembly,  
Cam Gear 2, GL Arm Assembly ..... 32

### 5. Adjustment

- 5-1. Check and Adjustment of TG1 Back-tension Position ..... 33
- 5-2. Check and Adjustment of FWD/RVS Back-tension ..... 34
- 5-3. Capstan Motor Azimuth Position Adjustment ..... 35
- 5-4. Tape Path Adjustment ..... 36

### 6. Exploded Views

- 6-1. Cassette Compartment Assy, Drum Assy ..... 40
- 6-2. LS Chassis Block Assembly ..... 41
- 6-3. Mechanical Chassis Block Assembly-1 ..... 42
- 6-4. Mechanical Chassis Block Assembly-2 ..... 43

### 7. Printed Wiring Boards and Schematic Diagrams

- ..... 44

# 1. Preparations for Check, Adjustment and Replacement of Mechanism Block

## Before Replacement, Check or Adjustment

- Refer to the “DISASSEMBLY” section of the SERVICE MANUAL of the respective models for details of removing cabinets and printed wiring boards.
- When checking a mechanism or making any adjustment to the mechanism or replacing mechanical parts, be sure to use the Mode Selector II and select the appropriate status of the mechanical deck such that the mechanical status is suitable for the desired work. Refer to section “1-2. Mode Selector II Operating Procedure” for details on how to enter the mode shown in a rectangle   mode in the sequent sections of this manual.

\* Assemble and adjust the parts in the USE mode if any mode is not specified in this manual.

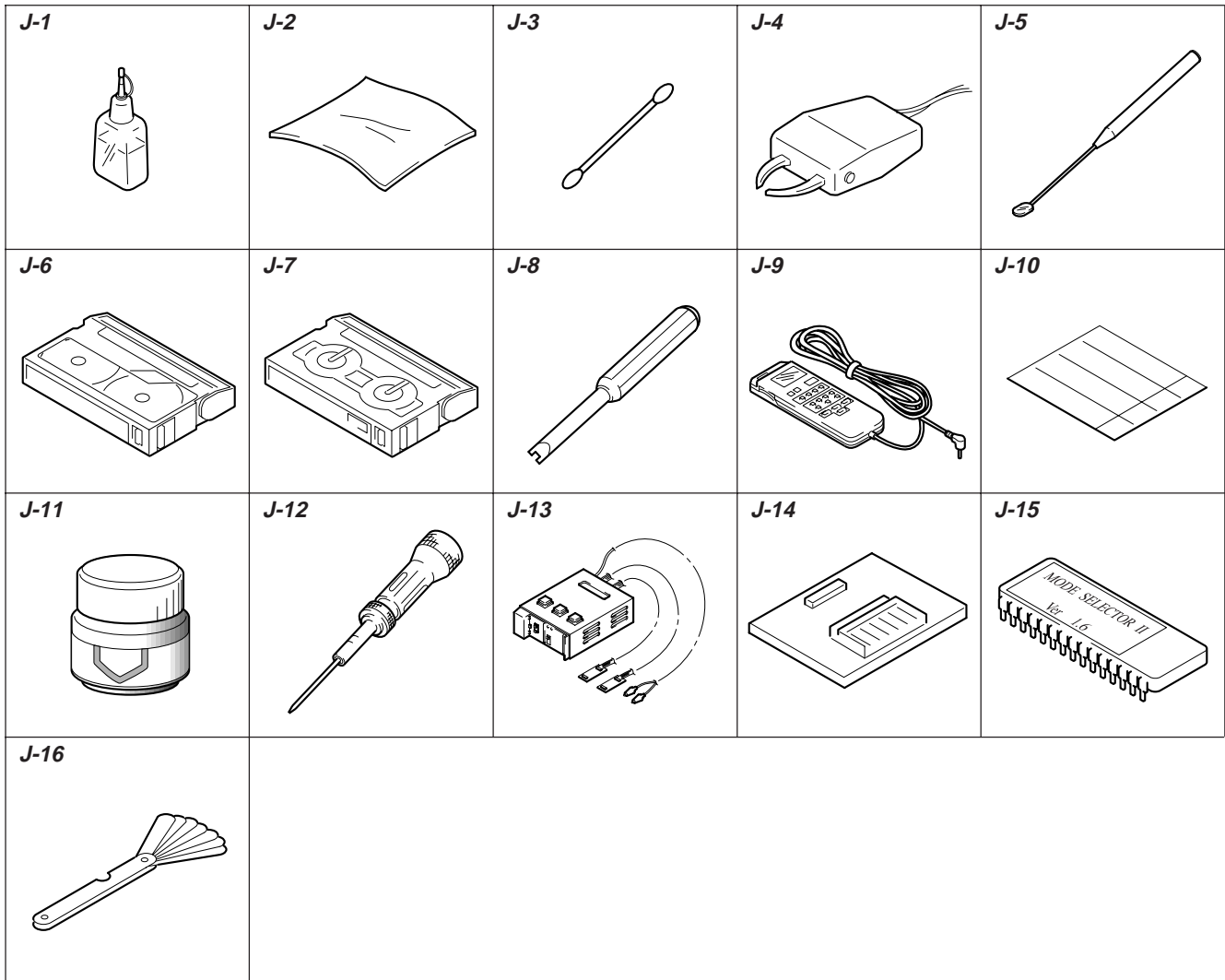
## 1-1. Service Jigs and Tools

Ref. No.	Name	Part code	Jig inscription	Used for
J-1	Cleaning fluid	Y-2031-001-0		
J-2	Wiping cloth	7-741-900-53		
J-3	Super-fine applicator (made by Nippon Applicator (P752D))			
J-4	Head eraser	commercially available		Tape path
J-5	Mirror (small oval type)	J-6080-840-A	GD-2038	Tape path
J-6	Alignment tape	NTSC : WR5-1NP	8-967-995-02	For tracking adjustment
		PAL : WR5-1CP	8-967-995-07	
J-7	FWD/RVS take-up torque cassette	J-6080-824-A	GD-2086	
J-8	Tape path screwdriver	J-6082-026-A		For tape guide adjustment
J-9	Adjustment remote commander (RM-95 upgrated)	J-6082-053-B		Tape path (for setting the path mode)(Note)
J-10	MD process table	J-6082-166-A		
J-11	Floil grease	7-662-001-39		
J-12	Torque screwdriver	J-9049-330-A		
J-13	Mode Selector II	J-6082-282-B		
J-14	Mode Selector II conversion board	J-6082-516-A		
J-15	Mode Selector II ROM, Ver 1.6	J-6082-314-E		
J-16	Thickness gauge	9-911-053-00		For capstan azimuth adjustment, LS cam plate position adjustment

## Other required equipment:

- Oscilloscope
- Analog tester (20 kΩ)

**Note:** If the micro processor IC in the adjustment remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).



**Fig. 1-1.**

## 1-2. Mode Selector II Operating Procedure

### 1-2-1. Introduction

The Mode Selector II is a mechanism drive tool that assists maintenance work of the various mechanism decks. It has the following functions.

#### 1. Manual Test

In this mode, the motor of the mechanism deck is powered only during the period while the switch is turned on manually. Using the Manual Test, the operator can freely control the motor of the mechanism deck.

#### 2. Step Test

In this mode, the motor of the mechanism deck is kept turned on until the mechanical status is changed from the present mechanical status that is obtained from the sensor information. The Step Test is used to confirm a series of movements of the mechanism deck.

#### 3. Auto Test

The Mode Selector II stores the status transition table in its memory as data indicating the respective modes of the mechanism deck. The status transition table can be used to confirm whether a mechanism deck is operating normally or has abnormality from a series of movements of a mechanism deck. If an abnormal status transition is detected during operation, the “NG” indication appears and the mechanism stops moving.

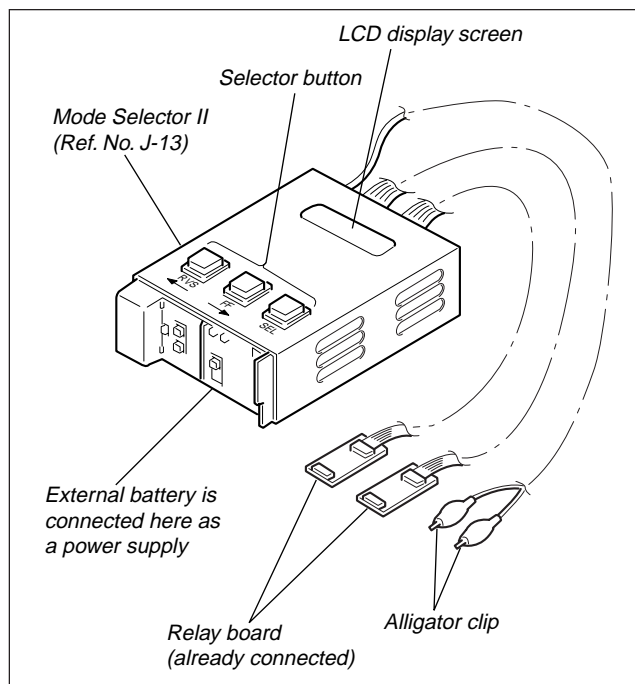


Fig. 1-2.

### Mode Selector II (J-6082-282-B) connection diagram

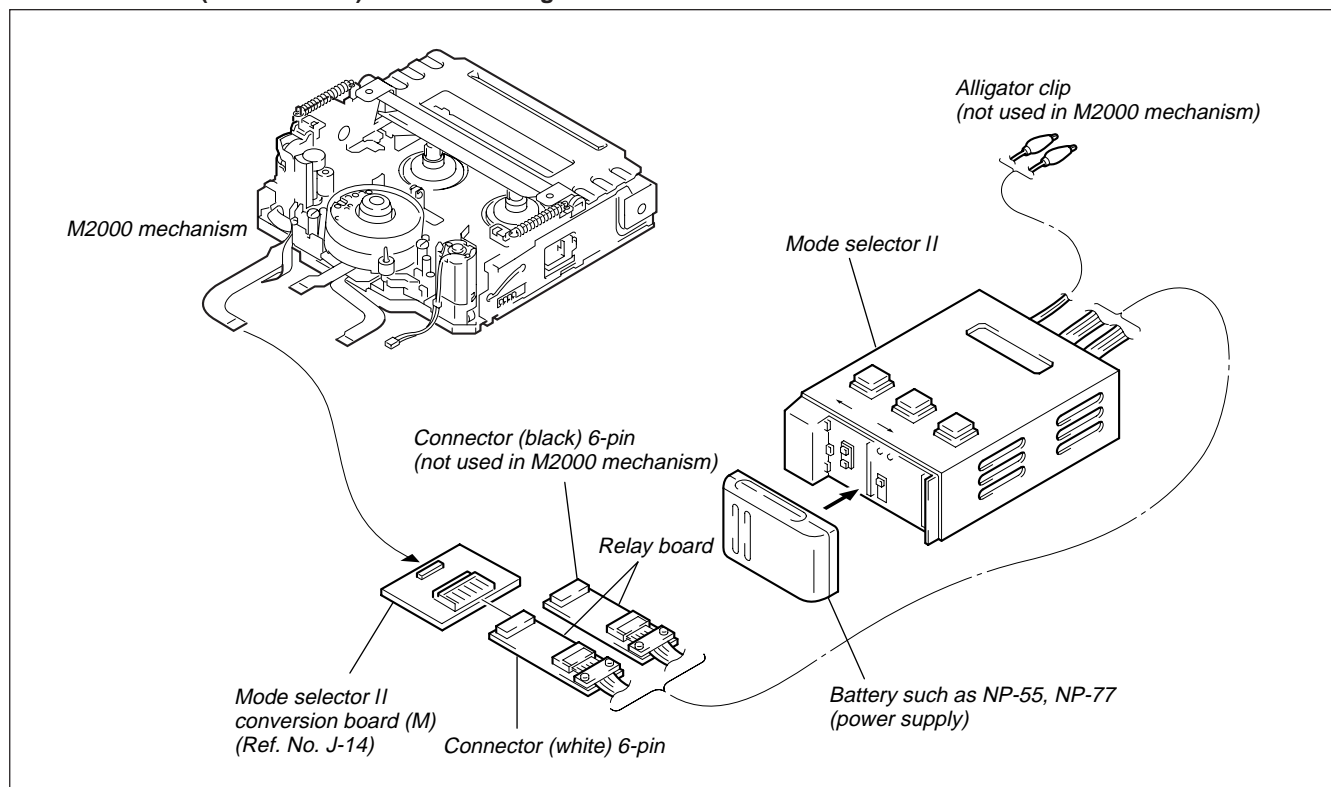


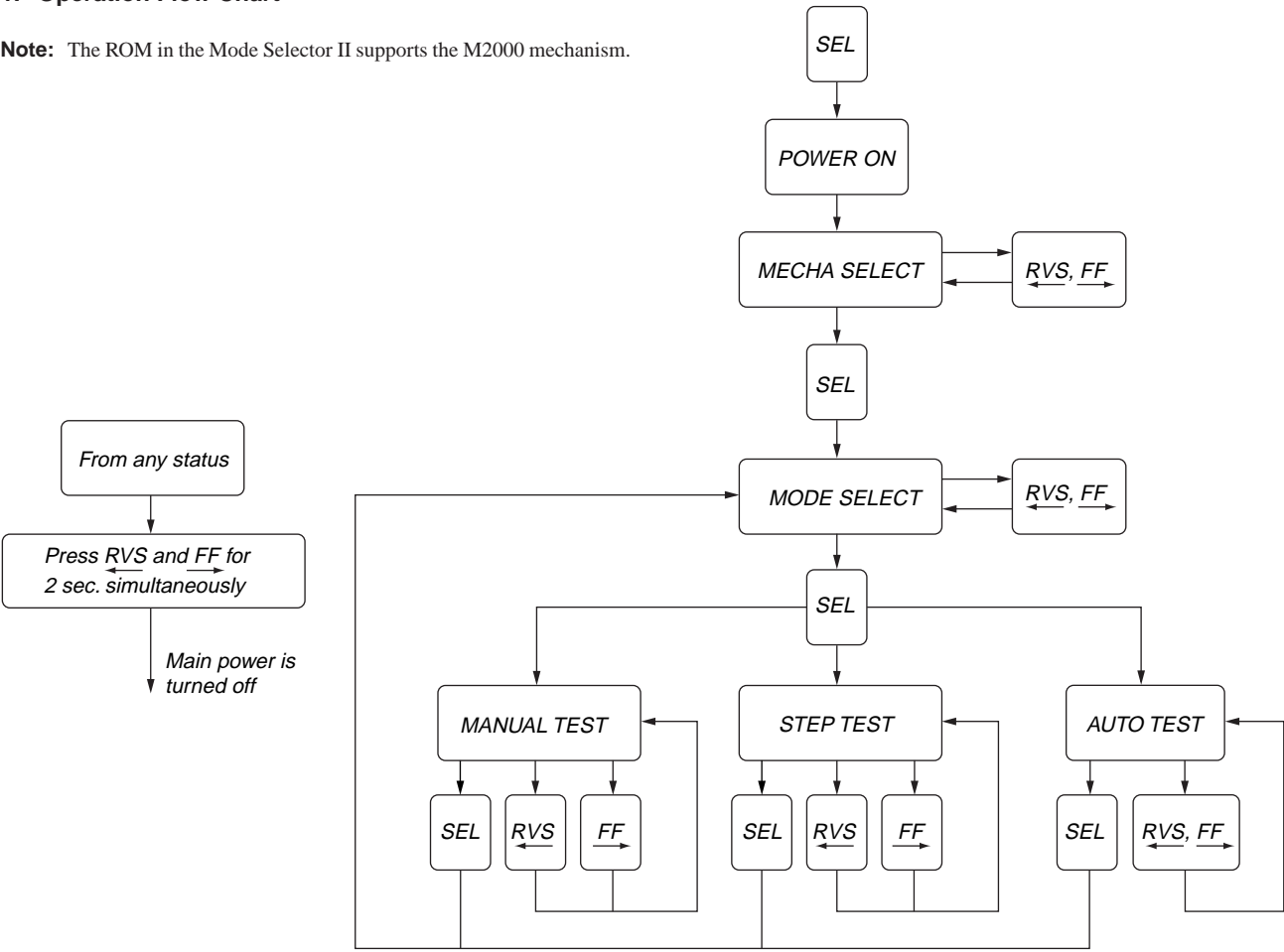
Fig. 1-3.



1-2-2. Operation

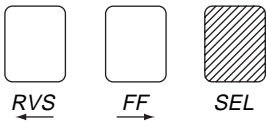
1. Operation Flow Chart

**Note:** The ROM in the Mode Selector II supports the M2000 mechanism.



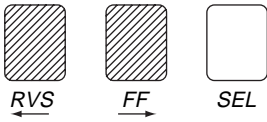
2. Mode Selector II Power On

Turn on the main power of the Mode Selector II as follows.  
Press the SEL button.



3. Mode Selector II Power Off

Turn off the main power of the Mode Selector II as follows.  
Press the RVS and FF buttons at the same time for 2 seconds or longer while the power is on.



#### 4. Mecha Select

When the main power is turned on, the MECHA SELECT display appears on the LCD screen. Select the desired mechanism name using the RVS and FF buttons. Selection is complete when the SEL button is pressed. (Fig. A shows the B mechanism.)

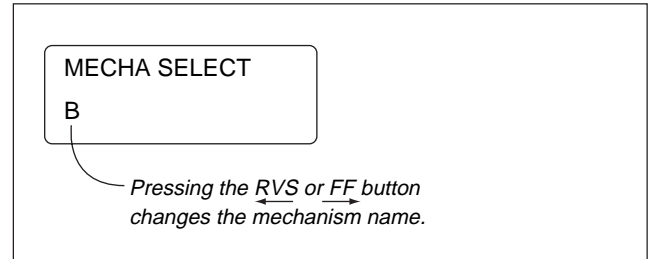


Fig. a

#### 5. Test Type Select

Using the RVS and FF buttons, select a desired test type from the three types of "MANUAL", "STEP" and "AUTO". Selection is complete when the SEL button is pressed.

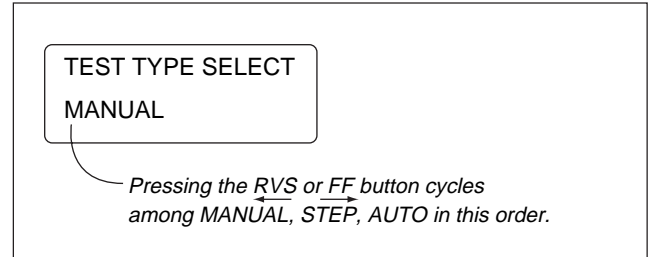


Fig. b

#### 6. Manual Test

In this test, the motor of the mechanism deck is turned on only during the period while the RVS or FF button is pressed manually.

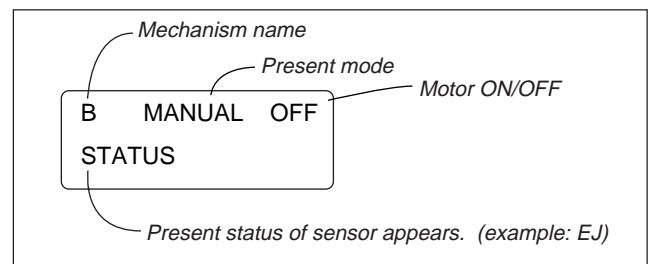


Fig. c

#### 7. Step Test

In this test, the direction of motor movement is determined by the RVS and FF buttons. The motor of the mechanism deck is kept turned on until the mechanical status is changed from the present mechanical status that is obtained from the sensor information.

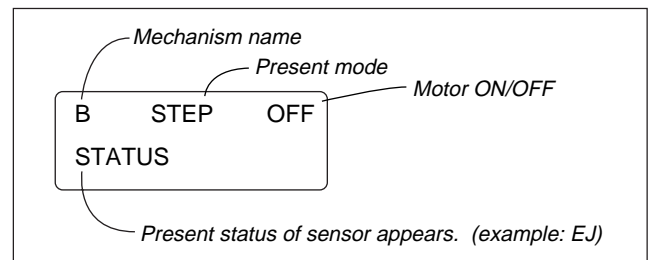


Fig. d

#### 8. Auto Test

In this test, the mechanism deck is tested as to whether it performs a series of movements correctly in accordance with the operation sequence that is memorized earlier for each type of deck, by checking the output signals from sensors with the stored memory. Turning on the RVS or FF button performs the same operation.

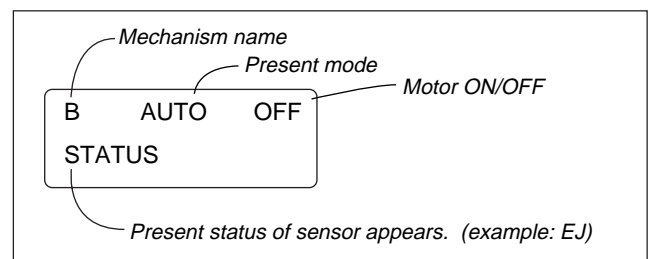


Fig. e

1-2-3. Mechanism Status (Position) Transition Table Using Mode Selector II

After selecting a mechanism deck, select either the MANUAL or STEP test (not AUTO) using the Mode Selector II. The desired mechanism status (position) can be specified by pressing the RVS or FF button. (The selected status appears on STATUS.)  
EJ↔USE↔LOAD↔STOP↔TURN↔RP↔REW

MD name			M2000 Mechanism	
Code				
A	B	C		
1	0	0	1	EJ
1	1	0	2	USE
0	1	0	3	LOAD
0	1	1	4	STOP
0	0	1	5	TURN
0	0	0	6	RP
1	0	1	7	REW

[ 0 is common and short.  
1 is common and open. ]

1-2-4. Battery Alarm Indication

When the level of the battery used to supply power to this system decreases, this display appears asynchronously. When this happens, all operations are disabled and the battery must be replaced.

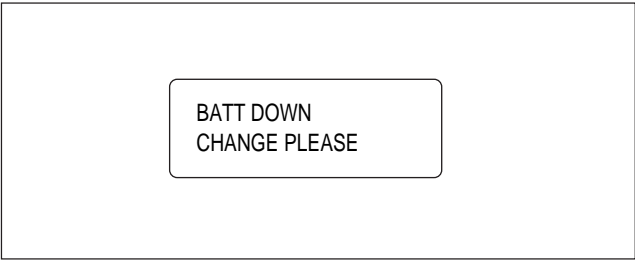


Fig. f

## 2. Periodic Inspection and Maintenance

- Be sure to perform the following maintenance and inspection so that the machine delivers its full performance and functions, and to protect the machine and tape. Also, perform the following maintenance items after completing the repair work, regardless of the number of hours the machine has been operated by the user.

### 2-1. Rotary Drum Cleaning

- 1) Press a wiping cloth (Ref. No. J-2) moistened with cleaning fluid (Ref. No. J-1) lightly against the rotary drum. Rotate the upper drum with a super-fine applicator slowly in the counter-clockwise direction to clean the rotary drum.

**Caution:** Never rotate the rotary drum by turning on the main power of the motor or rotate it in the clockwise direction. Never move the cloth vertically against the head tip, as this will surely damage the video head; the video head must not be cleaned by any other different methods.

### 2-2. Tape Path System Cleaning

(Refer to Fig. 2-1.)

- 1) Set the EJECT state. Clean the tape running path (TG1, 2, 3, 4, 5, 6 and 7, pinch roller and capstan shaft) and lower drum with a super-fine applicator (Ref. No. J-3) moistened with cleaning fluid.

**Note 1:** Be careful not to allow oil or grease of the various link mechanisms to get on the super-fine applicator (Ref. No. J-3).

**Note 2:** Once the super-fine applicator has been moistened with alcohol, do not use it to clean other mechanical parts such as the tape guide. However, the pinch roller is cleaned with alcohol.

**Note 3:** When cleaning the capstan shaft, be careful not to move the oil seal. If the oil seal is moved, oil will leak.

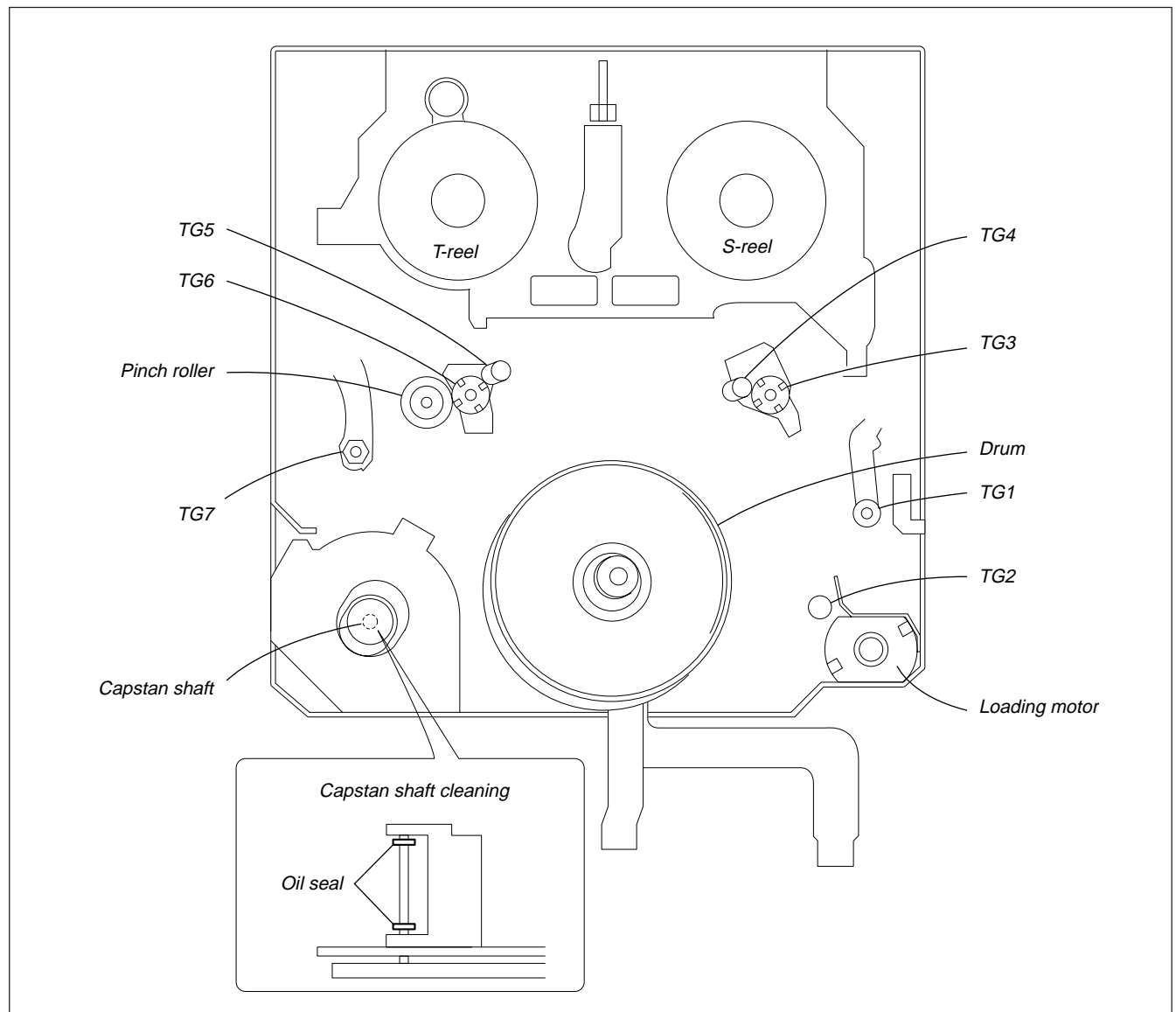


Fig. 2-1

## 2-3. Periodic Inspection List

Maintenance and inspection item		Operating hours (H)										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
Drive mechanism	Tape running surface cleaning	○	○	○	○	○	○	○	○	○	○	Be careful not to attach oil
	Rotary drum cleaning and degaussing	○	○	○	○	○	○	○	○	○	○	Be careful not to attach oil
	Timing belt	—	☆	—	☆	—	☆	—	☆	—	☆	
	Capstan shaft	—	☆	—	☆	—	☆	—	☆	—	☆	Never attach oil to the tape running path during periodic inspection.
	Loading motor	—	☆	—	☆	—	☆	—	☆	—	☆	
Performance check	Abnormal sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back-tension measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake system	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD/RVS torque measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

**Note:** When the machine is overhauled, replace the parts referring to the above list.

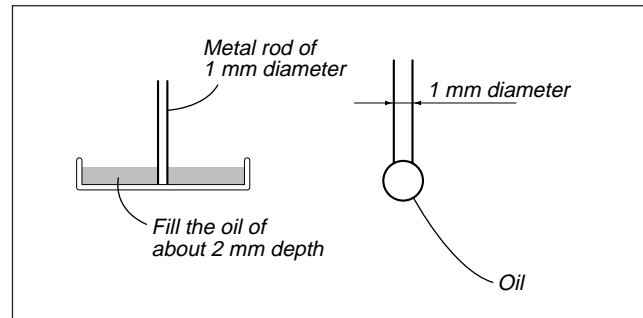
○: Cleaning, ☆: Check

## 2-4. Applying Oil and Grease

When replacing or assembling the parts, use oil and grease while referring to the following.

### On Oil

- Be sure to use the specified grease only. (If oil of different viscosity is used, it can cause various troubles.)  
Oil: Part No. 7-661-018-18  
(Mitsubishi diamond oil hydro fluid NT-68)
- The oil used for bearings must not contain any dust or other materials, otherwise excessive abrasion and seizure of the bearing could occur.
- A drop of oil means the amount of oil as shown in the illustration in the right, which is the amount that is attracted to the top of a rod of 2 mm diameter.



**Fig. 2-2**

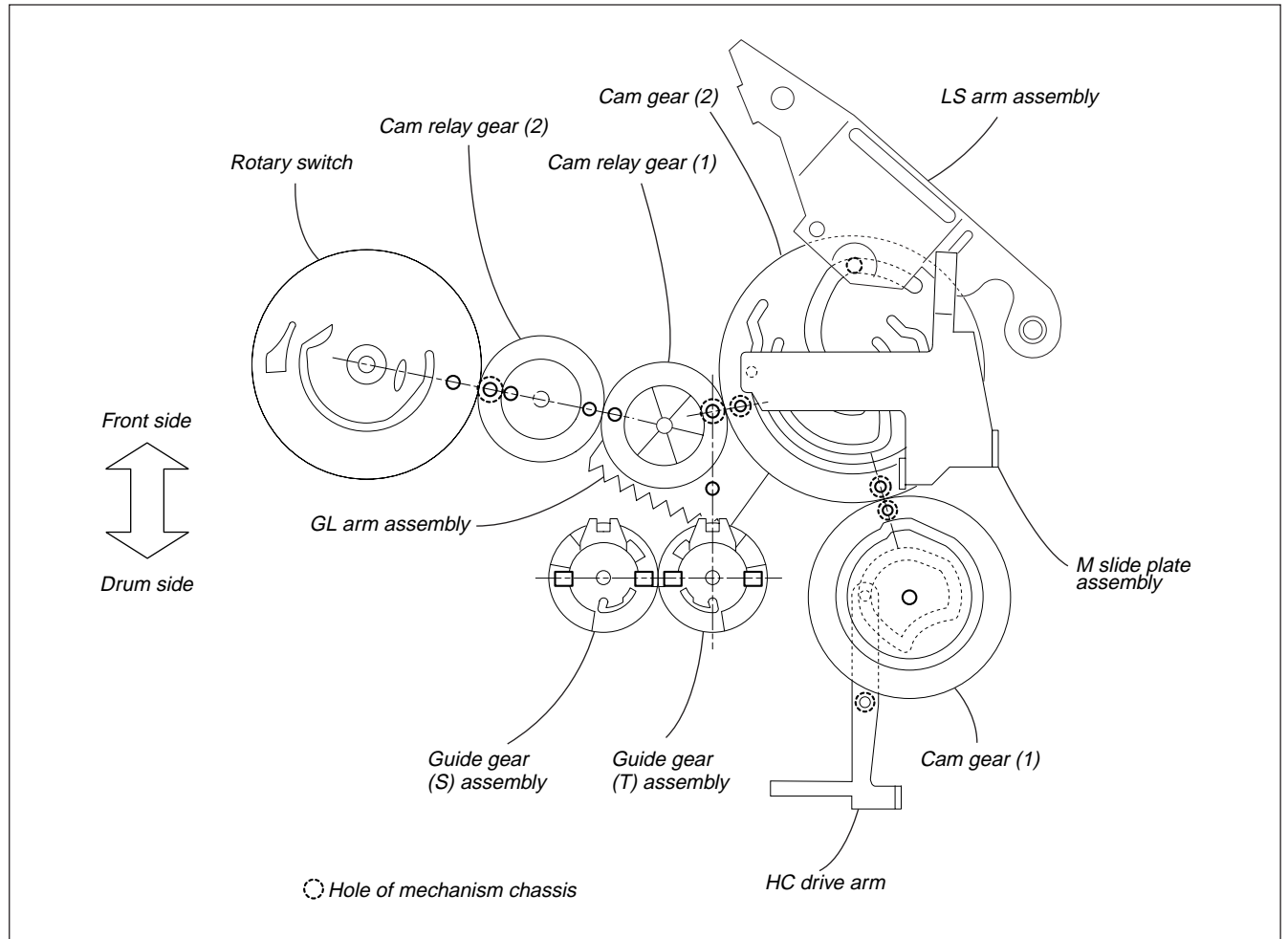
### On Grease

- Be sure to use the specified grease only. (If oil of different viscosity is used, it can cause various troubles.)  
Floil grease: Part No. 7-662-001-39
- Be sure to use grease into which dust is not mixed.
- The amount of grease is 1 to 1.5 mm diameter in length.

### 3. Before Replacement, Check or Adjustment

#### 3-1. Phase Adjustment

The phase adjustment of this mechanism block has been adjusted by using the in-phase markings shown in the following figure. When replacing or assembling the parts, check the phase.



**Fig. 3-1.**

## 3-2. Cassette compartment assembly

### 1. Removal procedure

- 1) Set the **[EJ]** mode to move up the cassette compartment assembly ⑩.
- 2) Remove the capstan flexible board and flexible wiring board (FP-300) ① from the holders ⑧, ⑨ and ⑩ in the directions of the arrows ①, ② and ③.
- 3) Push the damper assembly ③ in the directions of the arrows ④ and ⑤ and remove it from the notch of the LS chassis block assembly.
- 4) Remove the two screws (camera pan2 main M1.4 × 1.6) ④.
- 5) With the cassette compartment assembly ⑩ half opened, move the face plate in the direction of the arrow ⑥ and remove it from the grooves ⑥ and ⑦ on the LS chassis block assembly.
- 6) Remove the cassette holder (S) ⑧ and cassette holder (T) ⑨ of the cassette compartment assembly ⑩ from the groove on the LS chassis block assembly.

### 2. Attachment procedure

- 1) Set the **[USE]** mode.
- 2) Insert the cassette holder (S) ⑧ of the cassette compartment assembly ⑩ and cassette holder (T) ⑨ into the grooves on both sides of the LS chassis block assembly.
- 3) While moving down the cassette compartment assembly ⑩, lift up the face plate in the direction of the arrow ⑥ and keep this status. Then, insert the face plate in the grooves ⑥ and ⑦ on the LS chassis block assembly.
- 4) Tighten the two screws (camera pan2 main M1.4×1.6) ④. Tightening torque:  $0.078 \pm 0.01 \text{ N}\cdot\text{m}$  ( $0.8 \pm 0.1 \text{ kgf}\cdot\text{cm}$ )
- 5) Move the damper arm of the damper assembly ③ to the 4 o'clock position and insert the damper assembly into the hole on the LS chassis block assembly and the dowel of the cassette holder (T) ⑨.
- 6) Align the damper assembly ③ with the notch of the LS chassis block assembly and rotate the damper assembly ③ in the opposite direction to the arrow ⑤ to fix it.

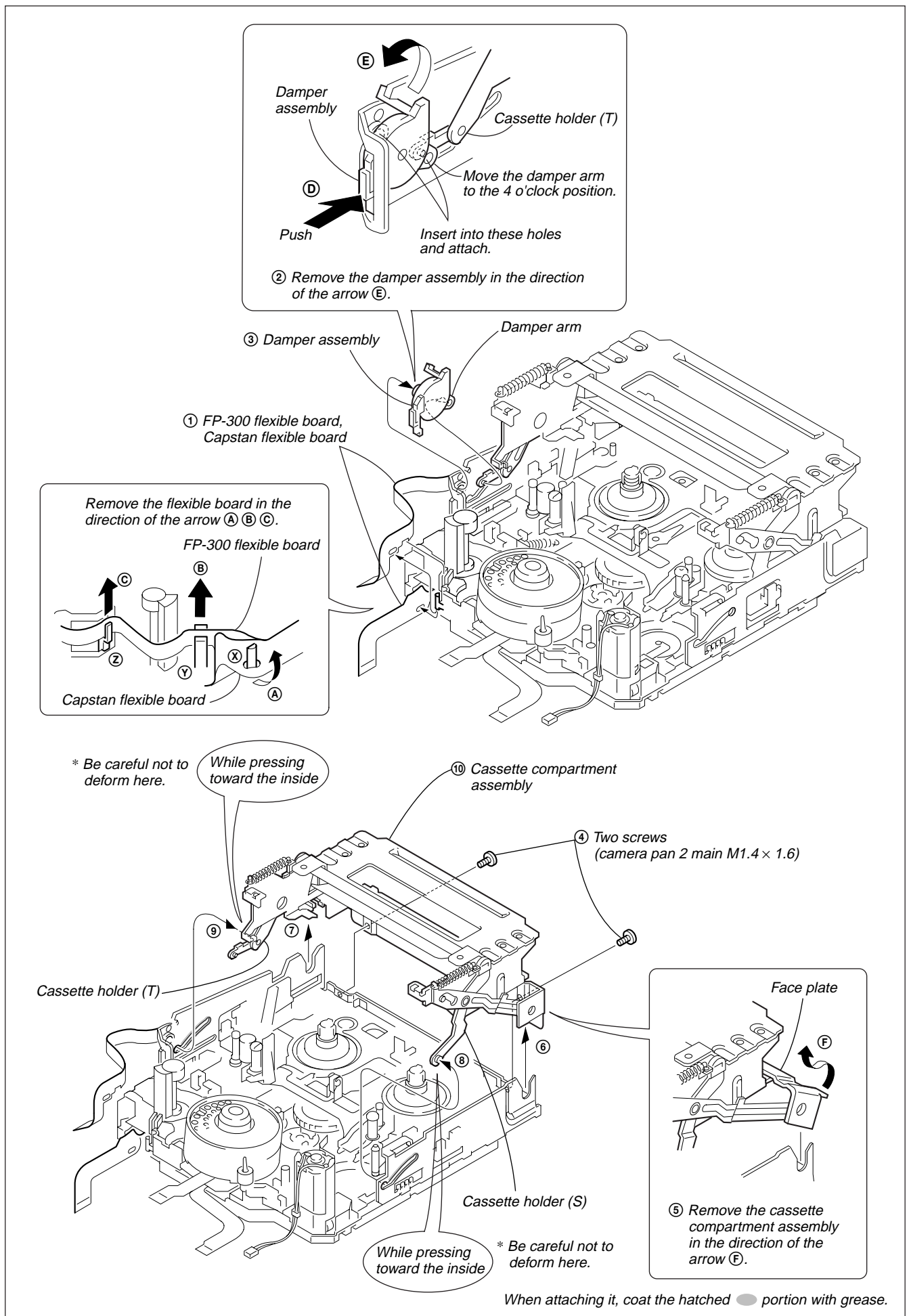


Fig. 3-2.



## 4. Check, Adjustment and Replacement

**Note:** For removal procedure of the cabinets, printed wiring boards and other parts, refer to “DISASSEMBLY” of the Service Manual of the respective models.

### 4-1. Drum Assembly

#### 1. Removal procedure

- 1) Remove the three screws (drum fitting M1.4 × 2.5) ① fixing the drum and remove the drum.

#### 2. Attachment procedure

- 1) Align the two reference holes A and B on the rear of the drum with the reference pins A and B of the drum base assembly.
- 2) Attach the drum with the three screws (drum fitting M1.4 × 2.5) ① in the order of ①A, ①B and ①C.  
Tightening torque:  $0.078 \pm 0.01 \text{ N}\cdot\text{m}$  ( $0.8 \pm 0.1 \text{ kgf}\cdot\text{cm}$ )
- 3) Clean the drum while referring to 2-1.
- 4) Adjust the tape path. (Refer to “4. Tape Path Adjustment”.)

**Note:** Do not touch the outside circumference.

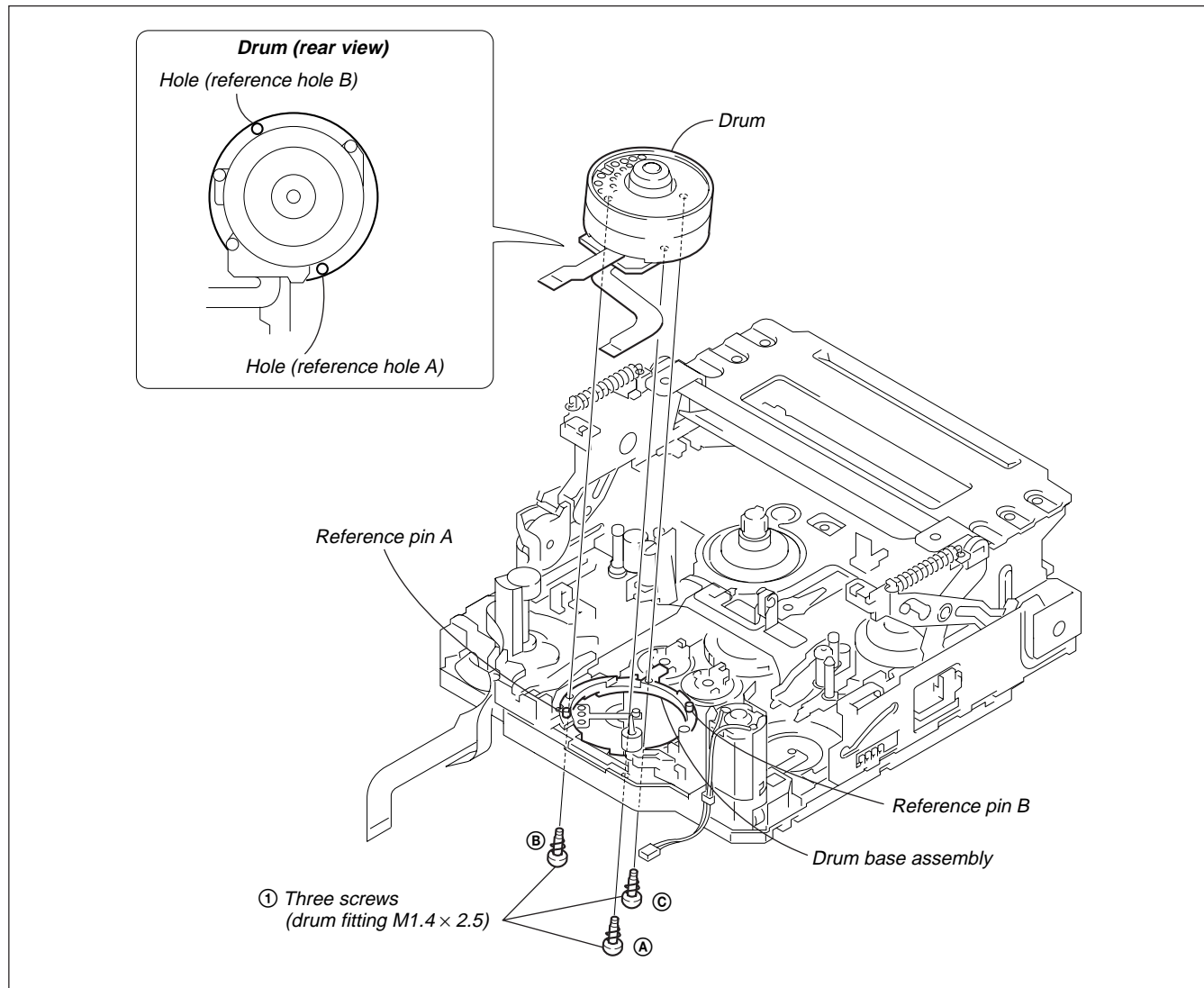


Fig. 4-1.

## 4-2. HCL Arm Assembly, Loading Motor Assembly

### 1. Removal procedure

- 1) Hook the HC arm spring in the direction of the arrow ⑥.
- 2) Remove the HCL arm assembly ② from the loading motor assembly ④.
- 3) Remove the screw (M1.4 × 2.5) ③.
- 4) Remove the three claws of the loading motor assembly ④ from the mechanism chassis assembly in the direction of the arrow ①.

### 2. Attachment procedure

- 1) Coat the worm shaft and gear of the loading motor assembly ④ with grease.
- 2) Insert the three claws of the loading motor assembly ④ into the groove on the mechanism chassis assembly.
- 3) Attach the screw (M1.4 × 2.5) ③.  
Tightening torque:  $0.078 \pm 0.01 \text{ N}\cdot\text{m}$  ( $0.8 \pm 0.1 \text{ kgf}\cdot\text{cm}$ )
- 4) Check the position of the HCL arm assembly ② and the HC drive arm. Then attach the HCL arm assembly ② to the loading motor assembly ④.
- 5) Hook the HC arm spring ① on the notch of the loading motor assembly ④.
- 6) Clean the drum assembly. (Refer to section 2-1.)

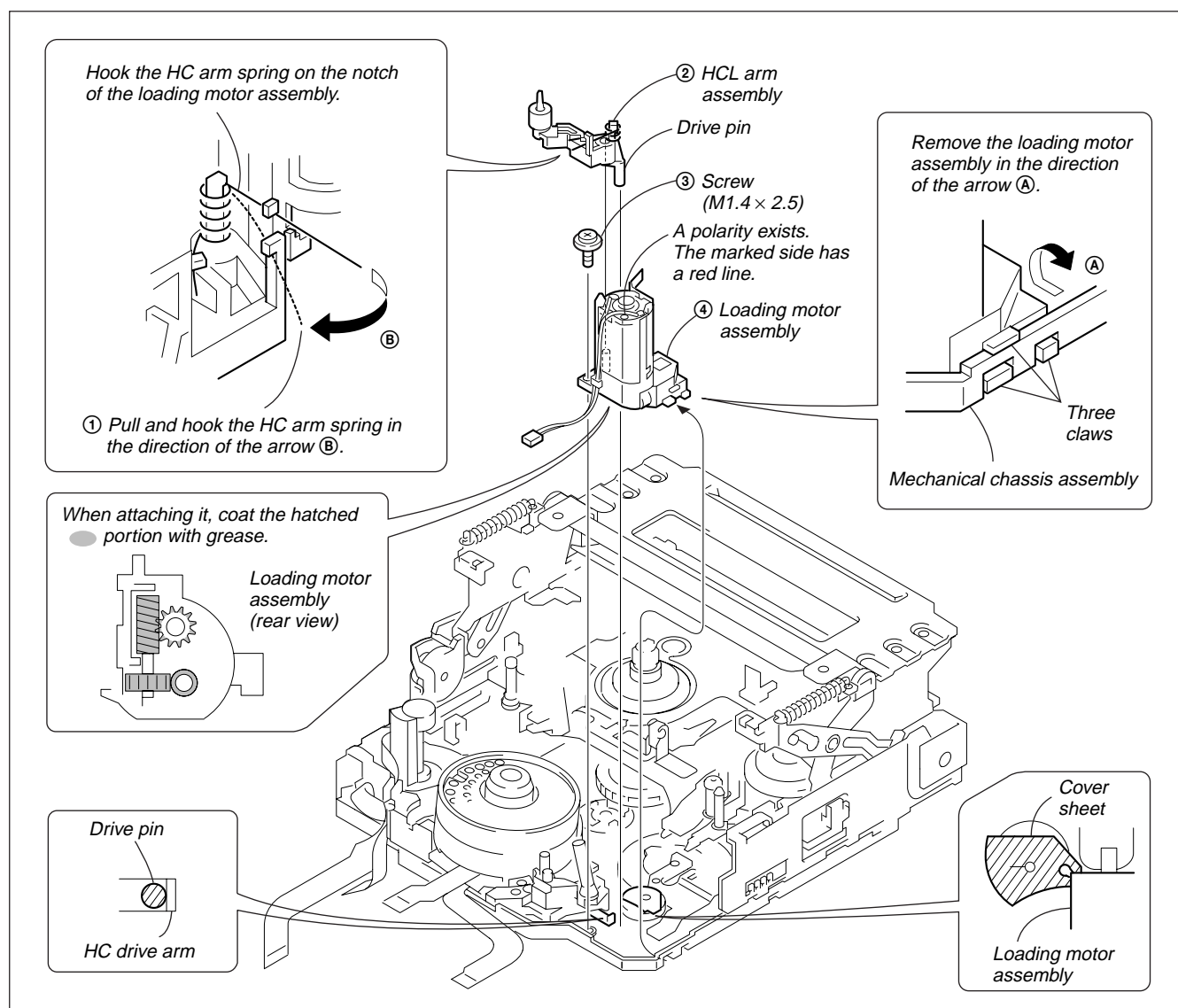


Fig. 4-2.

### 4-3. Drum Base Assembly, Drum Earth

#### 1. Removal procedure

- 1) Remove the capstan flexible board and flexible wiring board (FP-300) from the holders (X), (Y) and (Z) in the direction of the arrow.
- 2) Remove the drum assembly. (Refer to section 4-1.)
- 3) Remove the screw (M1.4 × 2.5) ②.
- 4) Remove the claw ⑩ of the guide rail T2 ③ from the hole ⑤ of the drum base assembly in the direction of the arrow ⑥.
- 5) Remove the three screws (M1.4 × 2.5) ④.
- 6) Remove the drum base assembly ⑤ in the direction of the arrow.
- 7) Remove the screw (screw assy PW M1.7 × 2.6) ⑥.
- 8) Remove the drum earth ⑦ and earth spacer ⑧.

#### 2. Attachment procedure

- 1) Attach the ground spacer ⑧ and drum ground ⑦ with the screw (screw assy PW M1.7 × 2.6) ⑥.  
Tightening torque:  $0.078 \pm 0.01 \text{ N}\cdot\text{m}$  ( $0.8 \pm 0.1 \text{ kgf}\cdot\text{cm}$ )
- 2) Align the drum base assembly ⑤ with the reference pin and tighten the three screws (M1.4 × 2.5) ④ in the order of ⑥, ⑨ and ①.
- 3) Insert the claw ⑩ of the guide rail T2 ③ into the hole ⑤ of the drum base assembly ⑤ and tighten the screw (M1.4 × 2.5) ②.  
Tightening torque:  $0.078 \pm 0.01 \text{ N}\cdot\text{m}$  ( $0.8 \text{ kgf}\cdot\text{cm}$ )
- 4) Remove the drum assembly. (Refer to 4-1.)
- 5) Attach the flexible wiring board (FP-300) ① and capstan flexible board to the drum base assembly.
- 6) Clean the tape running path. (Refer to 2-2.)

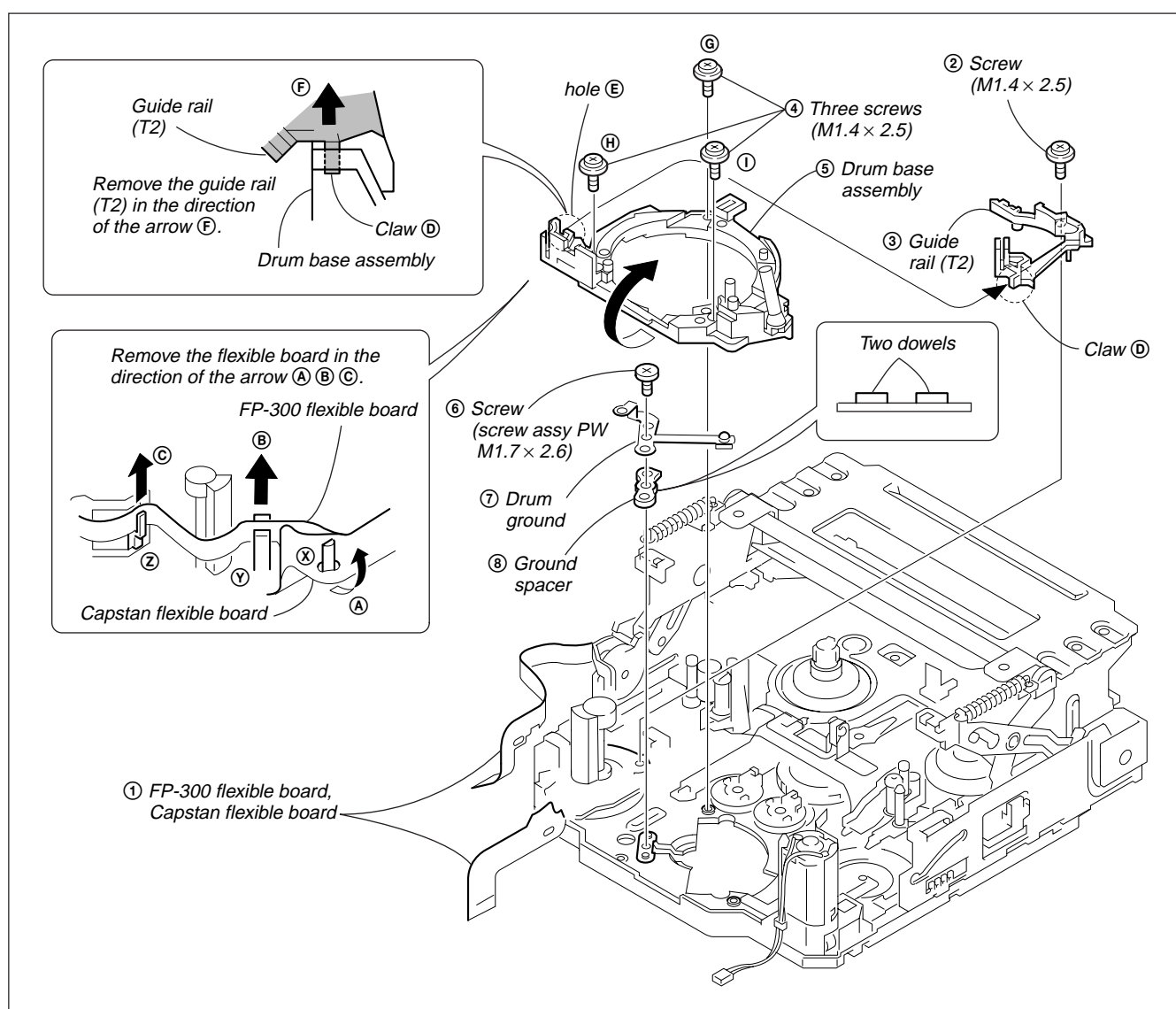


Fig. 4-3.

## 4-4. Guide Rail T2, Capstan Motor

### 1. Removal procedure

- 1) Remove the capstan flexible board and flexible wiring board (FP-300) ① from the holders (X), (Y) and (Z) in the directions of the arrows (A), (B) and (C).
- 2) Remove the screw (M1.4 × 2.5) ②.
- 3) Remove the claw of the guide rail T2 ③ from the hole on the drum base assembly in the direction of the arrow (D).
- 4) Remove the six solderings ④.
- 5) Remove the FP-228 flexible wiring board (2P) (DEW sensor) ⑤.
- 6) Remove the two screws (camera pan2 main M1.4 × 1.6) ⑥ and the screw (SANG camera pan2 main M1.4 × 4.5) ⑦.
- 7) Remove the capstan motor ⑧.
- 8) Remove the capstan spring ⑨ (be careful not to drop the capstan spring) and timing belt ⑩.

### 2. Attachment procedure

- 1) Hook the timing belt ⑩ on the gear of the capstan motor ⑧, attach the capstan motor while aligning it with the reference boss of the mechanism chassis assembly.
- 2) Attach the screw (SANG camera pan2 M1.4 × 4.5) ⑦ and capstan spring ⑨. (temporarily attachment)
- 3) Attach the two screws (camera pan2 M1.4 × 1.6) ⑥. Tightening torque:  $0.078 \pm 0.01 \text{ N}\cdot\text{m}$  ( $0.8 \pm 0.1 \text{ kgf}\cdot\text{cm}$ )
- 4) Attach the six solderings ④ to the FP-228 flexible wiring board ⑤ (2P) (DEW sensor) and the FP-299 flexible wiring board (4P).
- 5) Insert the guide rail T2 ③ into the hole on the drum base assembly and tighten the screw (M1.4 × 2.5) ②. Tightening torque:  $0.078 \pm 0.01 \text{ N}\cdot\text{m}$  ( $0.8 \pm 0.1 \text{ kgf}\cdot\text{cm}$ )
- 6) Attach the capstan flexible board and the flexible wiring board (FP-300) ① to the holders (X), (Y) and (Z).
- 7) Adjust the height of the capstan motor using the thickness gauge (Ref. No. J-16). (Refer to 5-3.)

**Note:** Be careful not to touch the center of the capstan motor ⑩ shaft and the FP-228 flexible wiring board (DEW sensor) with soldering iron or other tool.

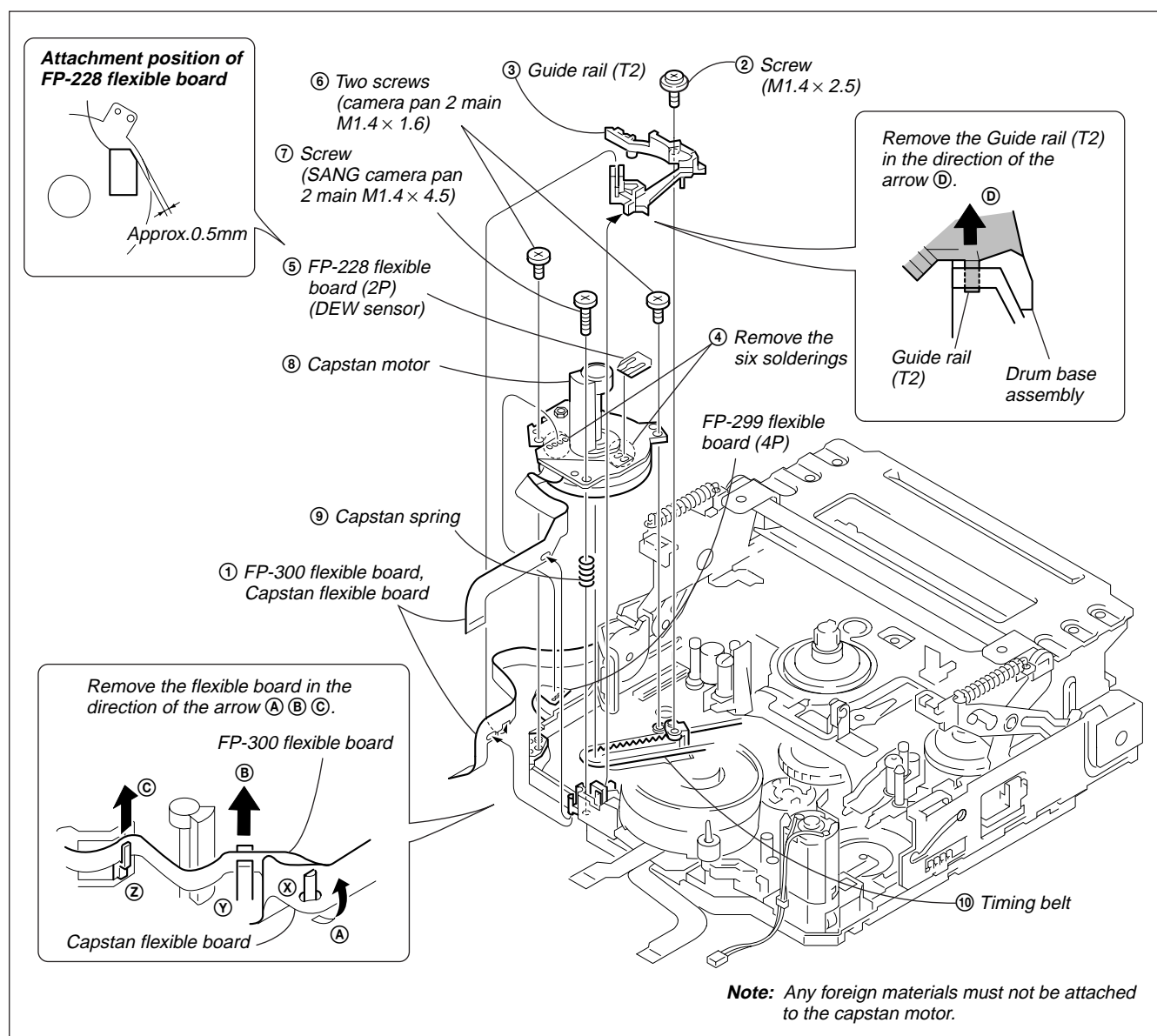


Fig. 4-4.

## 4-5. Blind Plate, Lock Guide

### 1. Removal procedure

- 1) Remove the diode D001 (tape LED) ① from the notch of the plate ④.
- 2) Remove the flexible wiring board ② (FP-301) from T-shaped portion of the blind plate ④ in the direction of the arrow ①.
- 3) Remove the screw (camera pan2 main M1.4 × 1.6) ③.
- 4) Release the hook on the notches ⑥, ⑦, ⑧ and ⑨ of the blind plate ④ in the direction of the arrow ②.
- 5) Remove the reel release lever ⑤ in the direction of the arrow ③.

### 2. Attachment procedure

- 1) Attach the reel release lever ⑤ to the blind plate ④.
- 2) Hang the notches ⑥, ⑦, ⑧ and ⑨ of the blind plate ④ on the hook.
- 3) Attach the screw (camera pan2 main M1.4 × 1.6) ③. Tightening torque:  $0.078 \pm 0.01 \text{ N}\cdot\text{m}$  ( $0.8 \pm 0.1 \text{ kgf}\cdot\text{cm}$ )
- 4) Attach the flexible wiring board (FP-301) ② to the T-shaped portion of the blind plate ④.
- 5) Attach the diode (tape LED) ① to the notch of the blind plate ④.

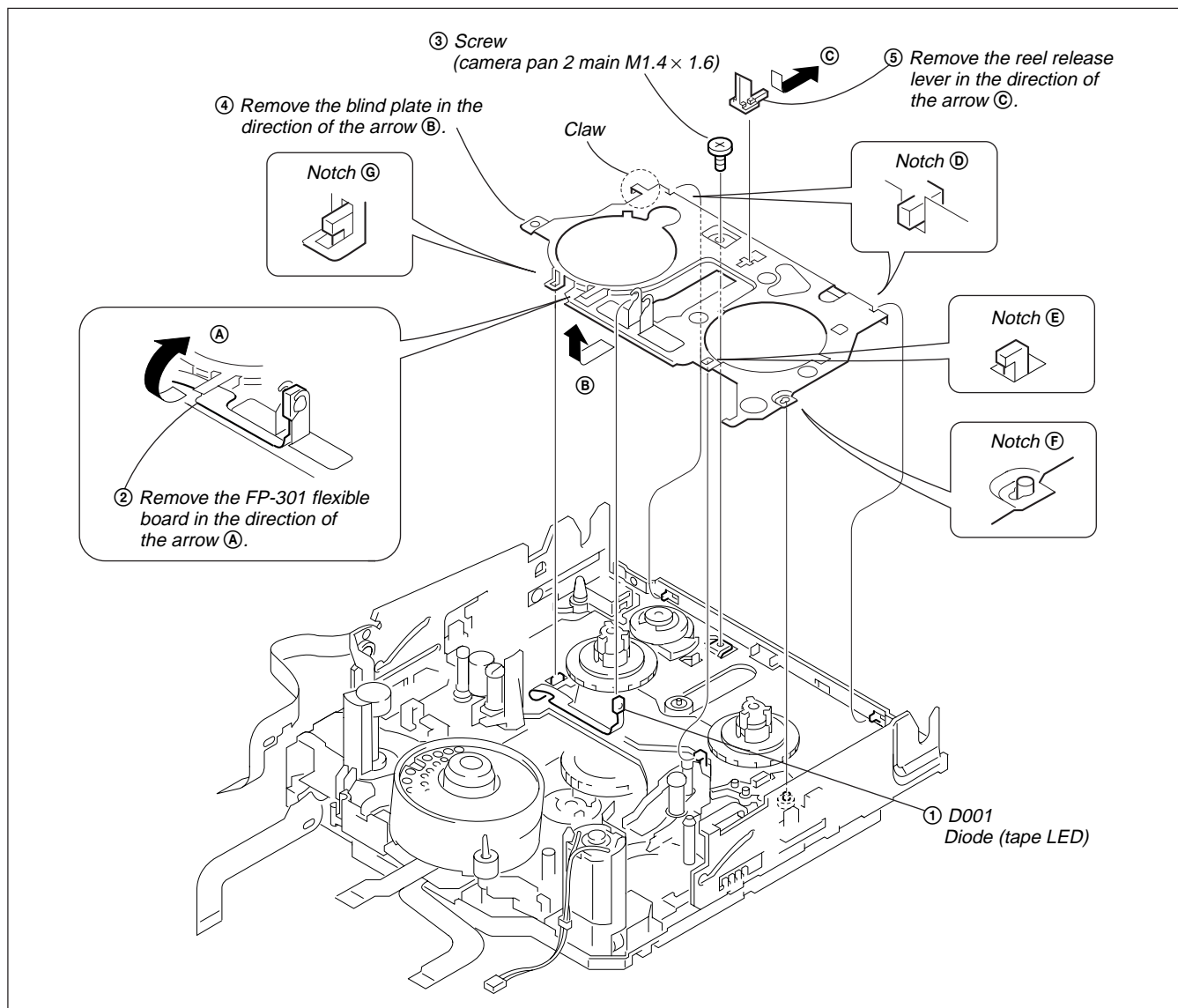


Fig. 4-5.

## 4-6. Reel Table (T) Assembly, T Soft Assembly

### 1. Removal procedure

- 1) Remove the blind plate. (Refer to 4-5.)
- 2) Open the claw of the reel table T assembly ① in the directions of the arrows ② and ③ and remove the reel table T assembly.
- 3) Remove the T soft assembly ② in the direction of the arrow ④.
- 4) Remove the T ratchet spring ③.
- 5) Remove the T ratchet arm ④ in the direction of the arrow ⑤.

### 2. Attachment procedure

- 1) Insert the T ratchet arm ④ into the groove on the LS chassis block assembly to attach it.
- 2) Attach the T ratchet spring ③ to the notch of the T ratchet arm ④ and LS chassis block assembly.
- 3) Insert the T soft assembly into the groove on the LS chassis block assembly.
- 4) Check the location of the reel table T assembly and attach the LS chassis block assembly to the shaft.
- 5) Attach the blind plate. (Refer to 4-5.)

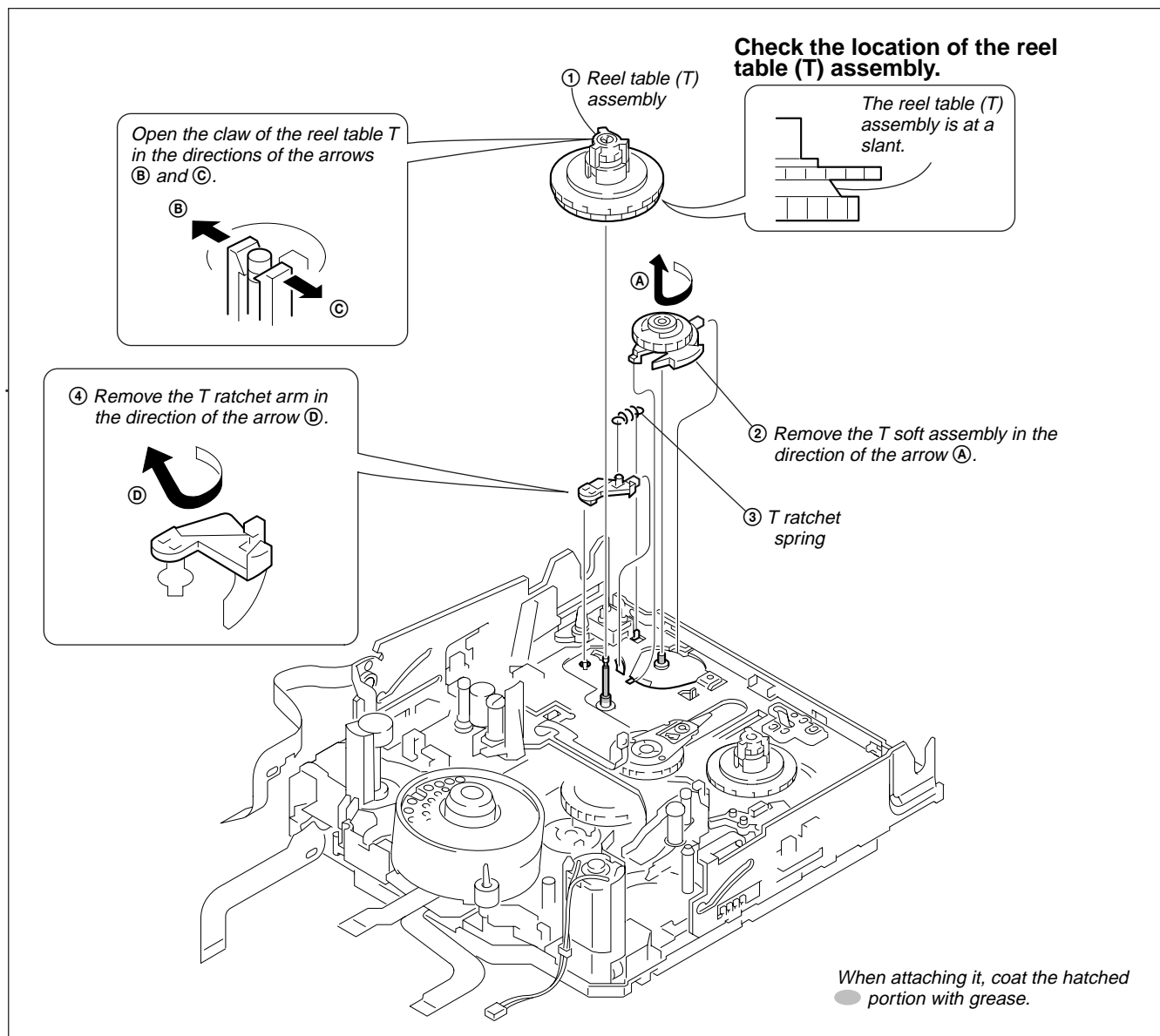


Fig. 4-6.



## 4-7. S Ratchet RE Plate, Cassette Guide S

### 1. Removal procedure

- 1) Remove the blind plate. (Refer to 4-5.)
  - 2) Remove the RE return plate spring ①.
  - 3) Remove the S ratchet spring ②.
  - 4) Remove the S ratchet arm ③ in the direction of the arrow ①.
- Note:** Do not reuse the S ratchet arm.
- 5) Remove the S ratchet RE plate.
  - 6) Remove the screw (camera tapping M1.4 × 2) ⑤.
  - 7) Remove the cassette guide S ⑥ in the direction of the arrow ②.

### 2. Attachment procedure

- 1) Attach the cassette guide S ⑥ to the notch of the LS chassis block assembly with the screw (camera tapping M1.4 × 2).
- 2) Attach the S ratchet RE plate ④ to the shaft of the LS chassis block assembly.
- 3) Attach the S ratchet arm ③ to the shaft of the LS chassis block assembly. At this time, the dowel of the S ratchet RE plate ④ must be inserted into the U-shaped notch of the S ratchet arm ③.
- 4) Hook the S ratchet spring ② on the notch of the S ratchet arm and attach it to the notch of the LS chassis block assembly.
- 5) Attach the RE return plate spring ① to the notch of the LS chassis block assembly.
- 6) Attach the blind plate. (Refer to 4-5.)

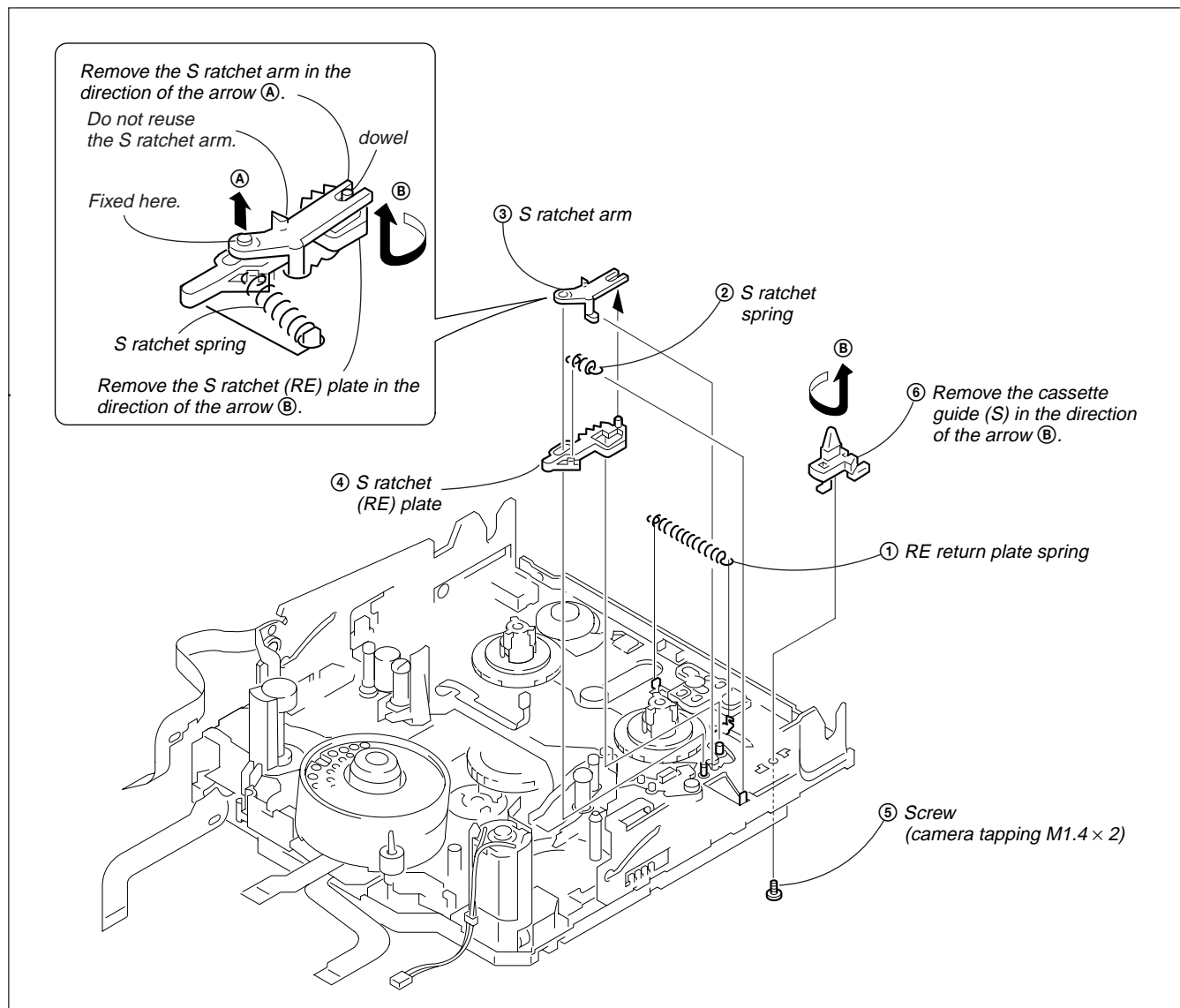


Fig. 4-7.

## 4-8. R Drive Gear Assembly, LS Cam Plate

### 1. Removal procedure

- 1) Remove the blind plate. (Refer to 4-5.)
- 2) Remove the lumiler cut washer ( $0.98 \times 3 \times 0.13$ ) ①.
- 3) Remove the R drive gear assembly ②.
- 4) Remove the HLC cut ( $1.8 \times 4 \times 0.5$ ) ③ and the two screws (precision type3 +P1.7  $\times$  1.8) ④.
- 5) Remove the LS cam plate ⑤.

### 2. Attachment procedure

- 1) Attach the R drive gear assembly ② with the lumiler cut washer ( $0.98 \times 3 \times 0.13$ ) ①.
- 2) Align the LS cam plate ⑤ with the two dowels of the LS chassis block assembly, temporarily fix the LS cam plate ⑤ with the two screws (precision type3 +P1.7  $\times$  1.8), then attach it with the HLC cut ( $1.8 \times 4 \times 0.5$ ) ③.
- 3) Adjust the position of the LS cam plate. (Refer to 4-9.)

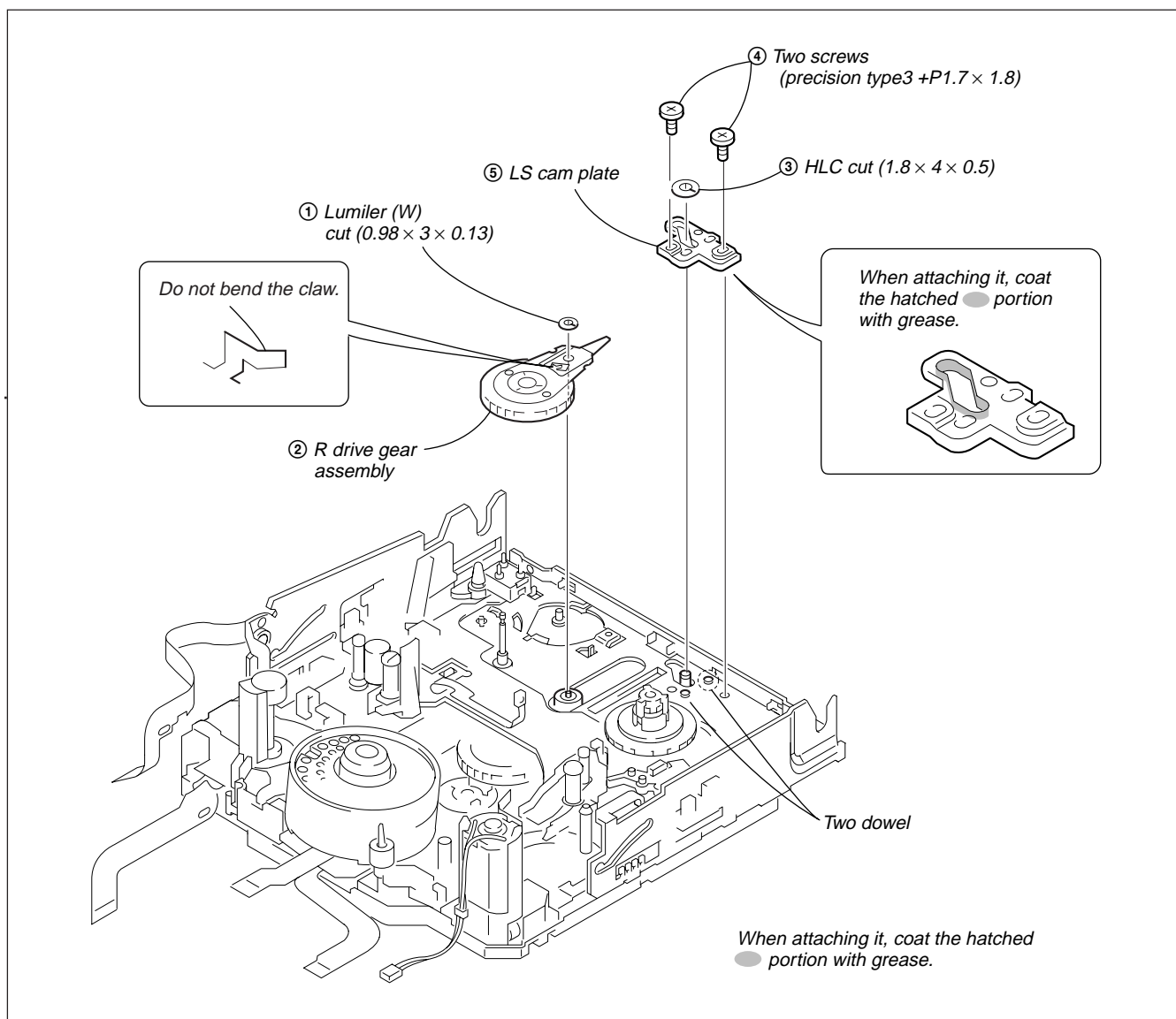


Fig. 4-8.



## 4-9. LS Cam Plate Position Adjustment

### 1. Adjustment Procedure

- 1) Perform loading of the LS chassis block assembly ① until the tip of the guide base (S) assembly reaches the drum base assembly.
- 2) Loosen the two screws (precision type3 +P1.7 × 1.8) ② of the LS cam plate and slide the LS chassis block assembly to the drum side so as to remove play.
- 3) Insert the thickness gauge 0.6 mm (Ref. No. J-16) between the LS cam plate and the LS chassis block assembly. Push the LS cam plate in the direction opposite to the drum to remove play.
- 4) Fix the two screws (precision type3 +P1.7 × 1.8) ②.  
Tightening torque:  $0.108 \pm 0.01 \text{ N}\cdot\text{m}$  (1.1 kgf·cm)

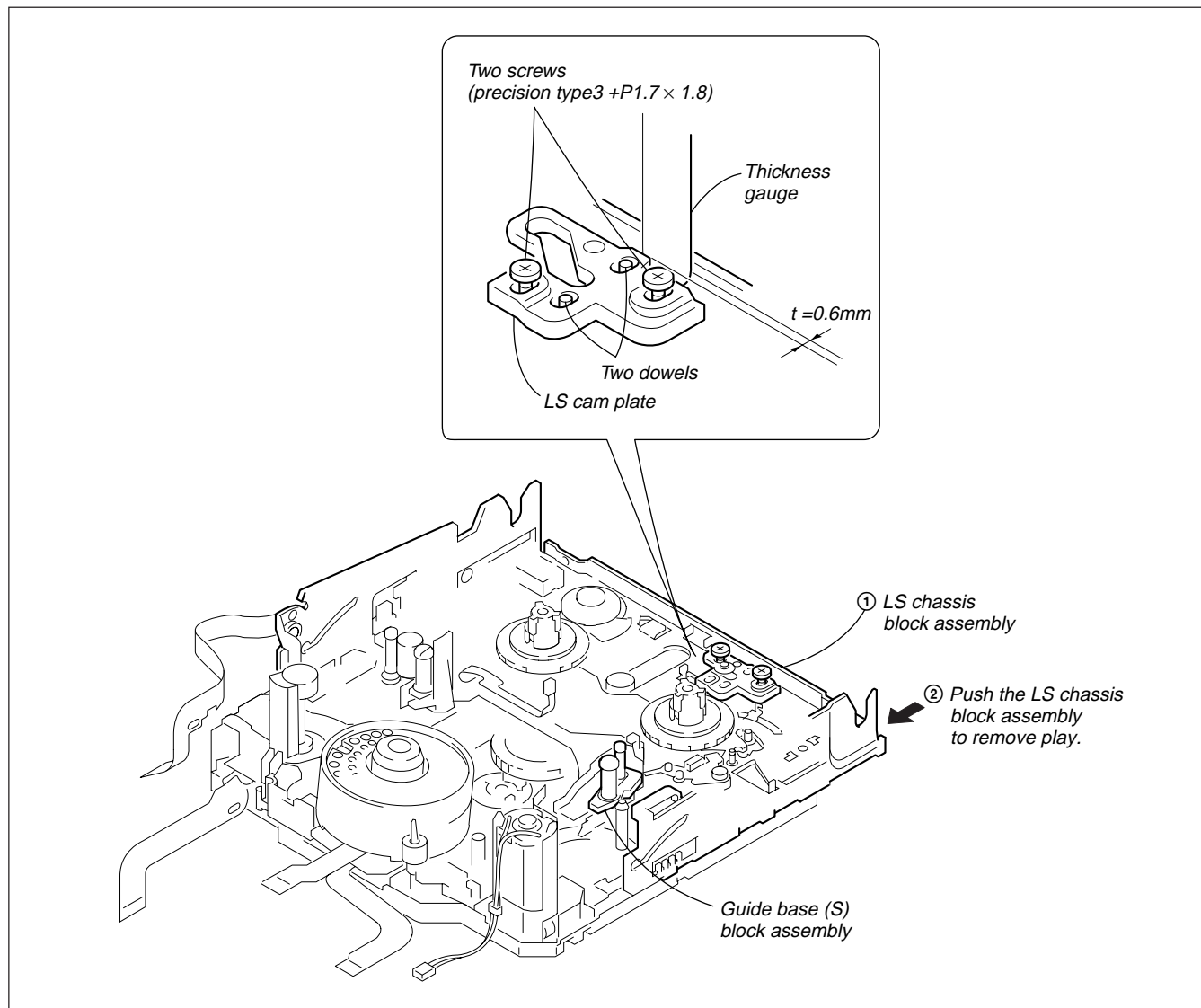


Fig. 4-9.

## 4-10. LS Chassis Block Assembly

### 1. Removal procedure

- 1) Move the LS chassis block assembly between **USE** and **LOAD**.
- 2) Remove the blind plate. (Refer to 4-5.)
- 3) Remove the R drive gear assembly. (Refer to 4-8.)
- 4) Remove the HCL cut (1.8 × 4 × 0.5) ①.
- 5) Remove the three screws (M1.4 × 2.5) ②.
- 6) Remove the LS chassis block assembly ③ in the direction of the arrow **A**.

### 2. Attachment procedure

- 1) Insert the LS guide roller and LS guide T2 pin of the mechanical chassis block assembly into the slot of the LS chassis block assembly ④.
- 2) Insert the pin of the LS arm assembly into the cam groove on the LS cam plate, face the TG7 drive pin ⑤ in the direction of the arrow **B**, and insert it to the two slot of the mechanical chassis. Then, tighten the three screws (M1.4 × 2.5) ② in the order of **C**, **D** and **E**.  
Tightening torque:  $0.078 \pm 0.01 \text{ N}\cdot\text{m}$  ( $0.8 \pm 0.1 \text{ kgf}\cdot\text{cm}$ )
- 3) Attach the HCL cut (1.8 × 4 × 0.5) ① to the pin of the LS arm assembly.
- 4) Attach the R drive gear assembly. (Refer to 4-8.)
- 5) Attach the blind plate. (Refer to 4-5.)
- 6) Clean the tape running path. (Refer to 2-2.)

**Note:** Each arm must move smoothly.

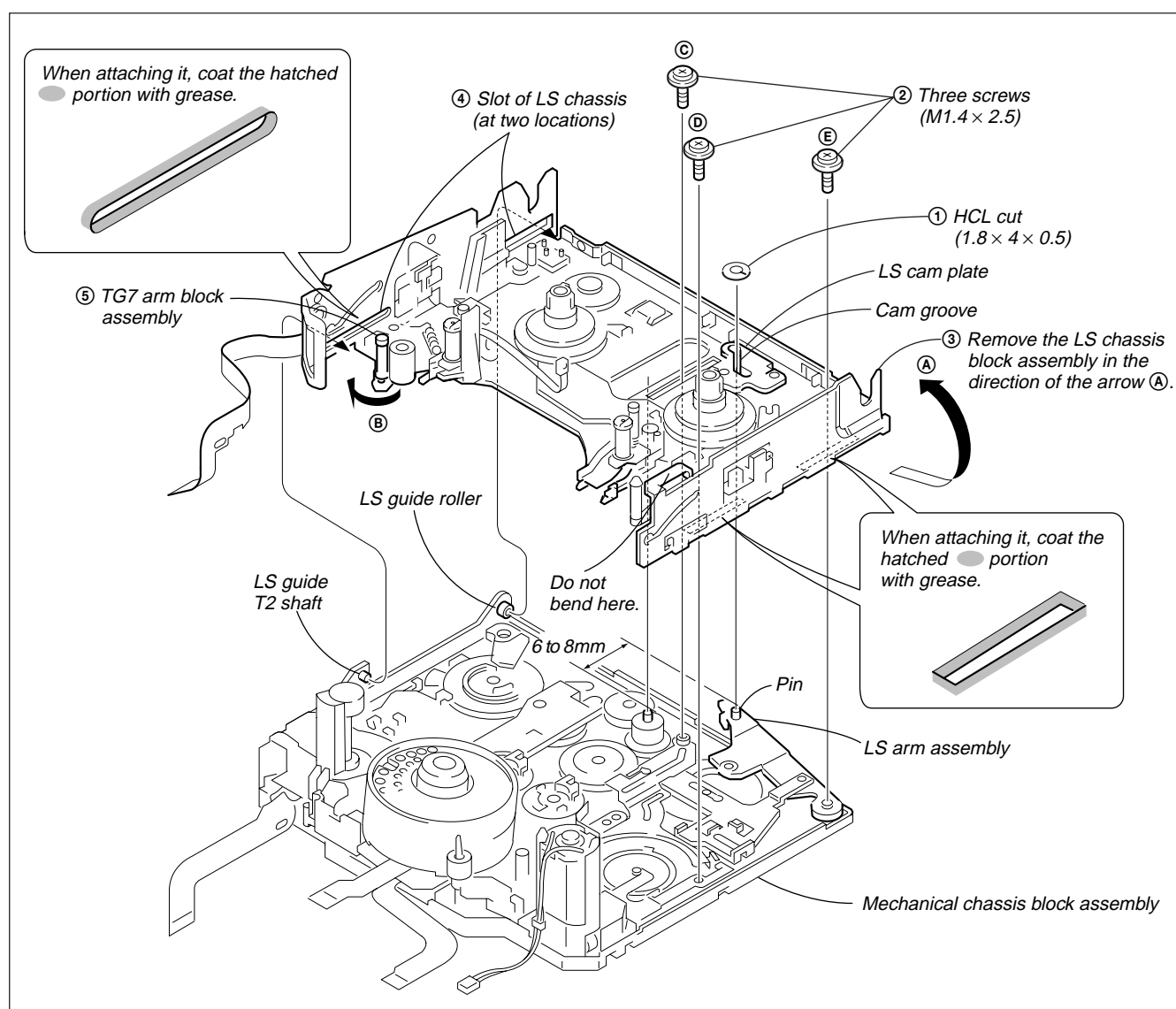


Fig. 4-10.

## 4-11. TG7 Arm Block Assembly, Pinch Arm Assembly

### 1. Removal procedure

- 1) Remove the LS chassis block assembly. (Refer to 4-10.)
- 2) Remove the screw (camera pan2 M1.4 × 1.6) ①.
- 3) Remove the TG7 retainer ② in the direction of the arrow.
- 4) Remove the TG7 arm block assembly ⑥ and TG7 arm spring ⑦.
- 5) Remove the pinch roller arm assembly ③.
- 6) Remove the P lim arm roller ④ and pinch arm load spring ⑤.

### 2. Attachment procedure

- 1) Attach the P lim arm roller ④ to the pinch roller arm assembly ③.
- 2) Insert one end of the pinch arm load spring ⑤ into the hole on the rising metal sheet of the LS chassis block assembly, and hook the other end of the spring on the position setting protrusion of the LS-057 board.
- 3) Attach the pinch roller arm assembly ③ to the shaft of the LS chassis block assembly, and hook the pinch arm load spring ⑤ on the rising metal sheet of the pinch roller assembly ③.
- 4) Hook the TG7 arm spring ⑦ on the shaft of the LS chassis block assembly while the hook side of the spring is facing downward.
- 5) When attaching the TG7 arm block assembly ⑥ to the shaft of the LS chassis block assembly, hook the hook side of the TG7 arm spring ⑦ on the rising metal sheet of the LS chassis block assembly and hook the top side of the spring to the notch of the TG7 arm block assembly ⑥.
- 6) Attach the TG7 retainer ② with the screw (camera pan2 M1.4 × 1.6) ①.
- 7) Remove the LS chassis block assembly. (Refer to 4-10.)  
Tightening torque:  $0.078 \pm 0.01 \text{ N}\cdot\text{m}$  ( $0.8 \pm 0.1 \text{ kgf}\cdot\text{cm}$ )
- 8) Clean the tape running path. (Refer to 2-2.)

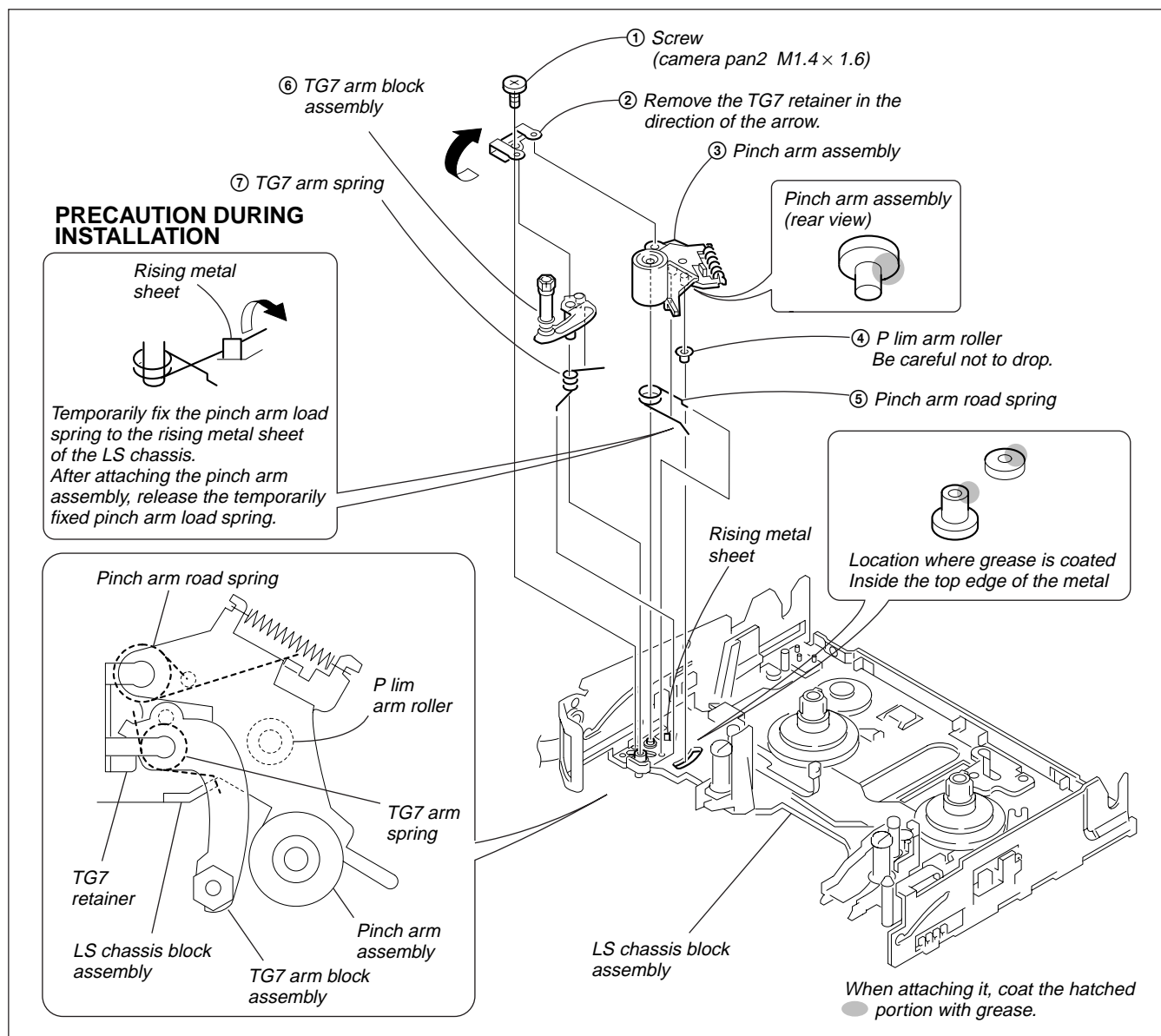


Fig. 4-11.

## 4-12. Guide Base (T) Block Assembly, Guide Base (S) Block Assembly

### 1. Removal procedure

- 1) Remove the LS chassis block assembly. (Refer to 4-10.)
- 2) Align the claw of the guide base (T) block assembly ① with the notch of the guide arm T and remove the guide base (T) block assembly.
- 3) Remove the screw (M1.4 × 2.5) ② and remove the guide rail (T) ③.
- 4) Align the claw of the guide base (S) block assembly ④ with the notch of the guide arm S and remove the guide base (S) block assembly.
- 5) Remove the screw (M1.4 × 2.5) ⑤ and remove the guide rail (S) ⑥.

### 2. Attachment procedure

- 1) Align the holes on the guide rail (S) ⑥ with the protrusions (at two locations) of the LS chassis block assembly and attach the guide rail (S) ⑥ with the screw (M1.4 × 2.5) ⑤.  
Tightening torque:  $0.078 \pm 0.01 \text{ N}\cdot\text{m}$  ( $0.8 \pm 0.1 \text{ kgf}\cdot\text{cm}$ )
- 2) Attach the guide base (S) block assembly ④ while aligning it with the groove on the guide arm S.
- 3) Align the holes on the guide rail (T) ③ with the protrusions (at two locations) of the LS chassis block assembly and attach the guide rail (T) ③ with the screw (M1.4 × 2.5) ②.  
Tightening torque:  $0.078 \pm 0.01 \text{ N}\cdot\text{m}$  ( $0.8 \pm 0.1 \text{ kgf}\cdot\text{cm}$ )
- 4) Attach the guide base (T) block assembly ① while aligning it with the groove on the guide arm T.  
**Note:** Do not forget to hook the plate spring.
- 5) Withdraw the joint portion of the guide arm S and the guide arm T in the directions of the arrows A and B.
- 6) Attach the LS chassis block assembly to the mechanical chassis. (Refer to 4-10.)
- 7) Clean the tape running path. (Refer to 2-2.)

**Note:** Be careful of the shape of the guide base T/S block assembly.  
Guide base (T) block assembly = Guide base (small)  
Guide base (S) block assembly = Guide base (large)

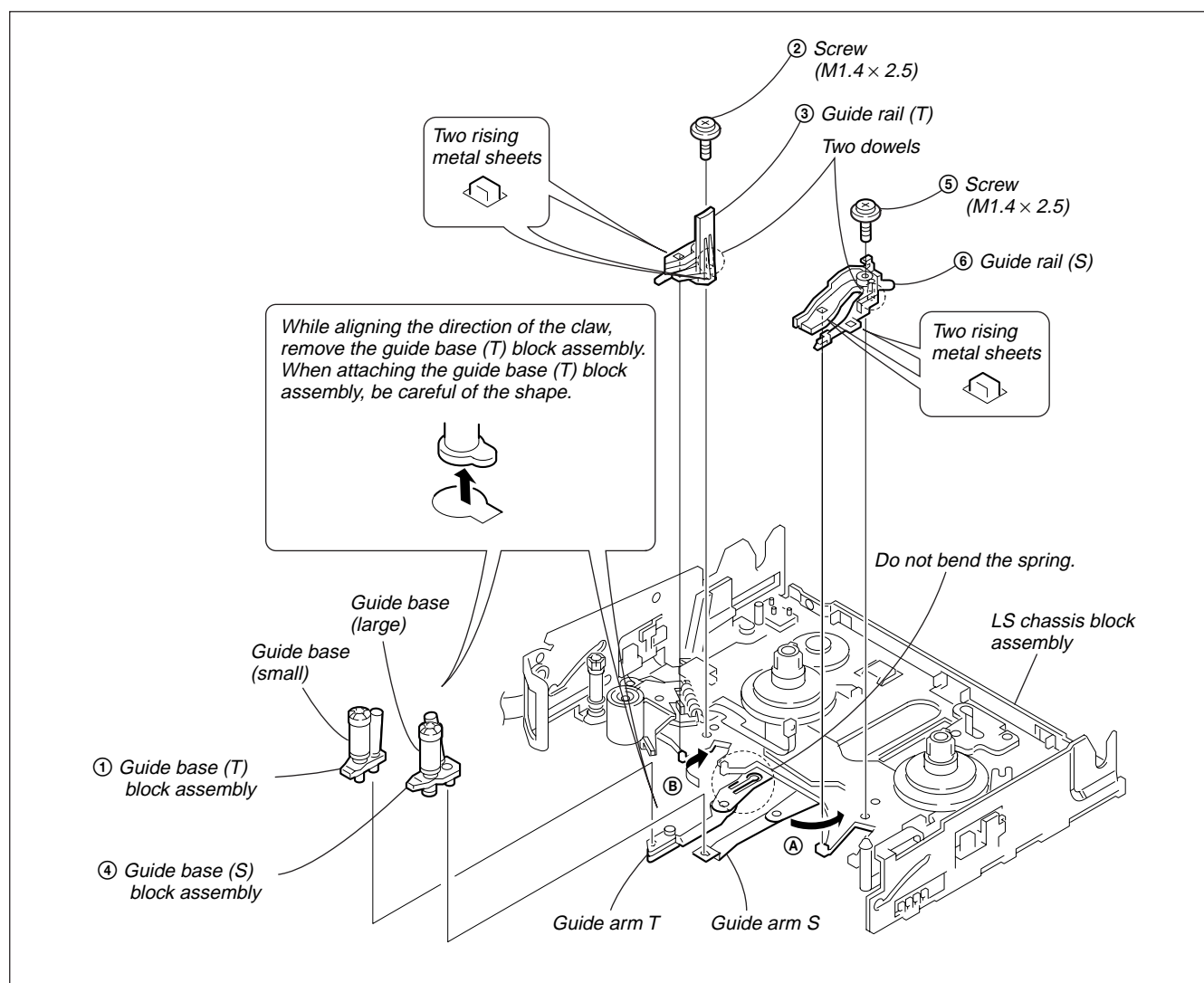


Fig. 4-12.

## 4-13. TG1 Arm, Reel Table (S) Assembly, Push Switch (3Key)

### 1. Removal procedure

- 1) Remove the TG1 arm spring ①.
- Note:** Take note of the position where the spring has been hooked.
- 2) Remove the TG1 arm ②.
- 3) Open the claw of the reel table (S) assembly ④ in the directions of the arrows ⑧ and ⑨ and remove the reel table S assembly.
- 4) Remove the RVS arm spring ⑤.
- 5) Rotate the S ratchet arm ③ in the direction of the arrow ⑥ and remove the BT band assembly ⑥.
- 6) Remove the lock guide ⑦.
- 7) Remove the four solderings of the LS-057 board.
- 8) Remove the two claws ⑨ of the cassette guide T ⑫ from the notch of the LS chassis.
- 9) Remove the push switch (3key) ⑪ by releasing the two claws of the cassette guide T ⑫.

### 2. Attachment procedure

- 1) Attach the push switch (3key) ⑪ to the cassette guide T ⑫ with the two claws ⑩.
- 2) Attach the cassette guide T ⑫ to the notch of the LS chassis block assembly with the two claws ⑨.
- 3) Solder the cassette guide T ⑫ to the LS-057 board at the four locations.
- 4) Attach the lock guide ⑦.
- 5) Attach the BT band assembly ⑥.
- 6) Check the location of the reel table S ④. Then, rotate the S ratchet arm ③ in the direction of the arrow ⑥ and insert the band of the BT band assembly ⑥ into the groove on the side.
- 7) Attach the BT band assembly to the TG1 arm ② and attach it to the mechanism chassis block assembly.
- 8) Check the shape of the hook of the TG1 arm spring ①. Hook one end of the spring on the TG1 arm ②. Then, hook the other end of the spring on the same location of the LS chassis block assembly where you have taken note when the spring is removed.
- 9) Attach the RVS arm spring.
- 10) Check the TG1 back-tension. (Refer to 5-1.)

**Note:** The BT band assembly ⑤ must be completely inserted into the groove on the side of the reel table (S) ④.

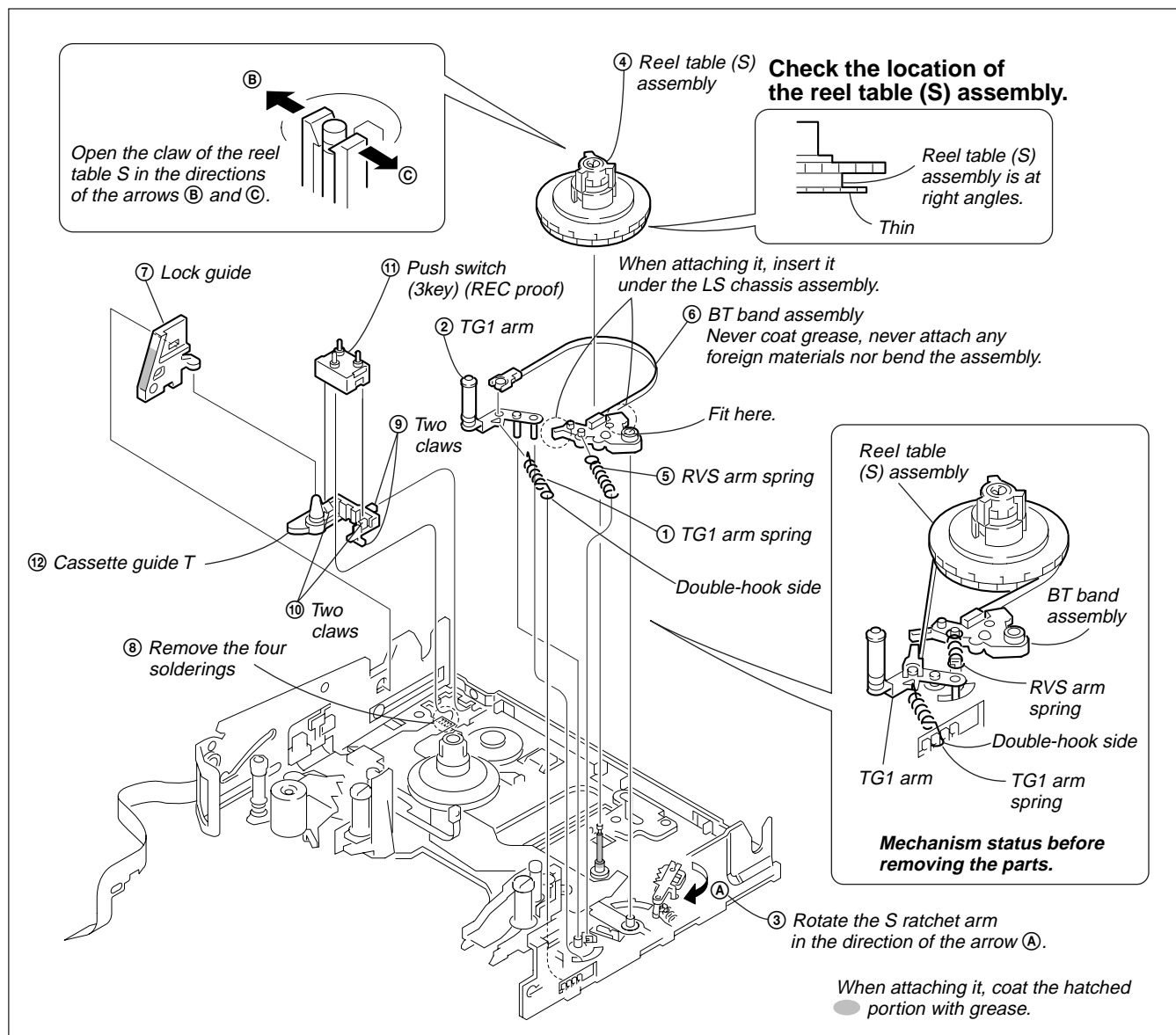


Fig. 4-13.

#### 4-14. Hall Element (H001, H002 (T/S Reel)), Photo Transistor (Q001, Q002 (Tape Top/Tape End), D001 (Tape LED)), LED (D001 (Tape LED))

##### 1. Removal procedure

- 1) Remove the LS chassis block assembly. (Refer to 4-10.)
- 2) Remove the LS grease cover.
- 3) Remove the two solderings and remove Q001 (tape top).
- 4) Remove the two solderings and remove Q002 (tape end).
- 5) Remove the two solderings and remove D001 (tape LED).
- 6) Remove the four solderings respectively from H001 (T reel) and H002 (S reel) and remove the H001 and H002.

##### 2. Attachment procedure

- 1) Solder H001 (T reel) and H002 (S reel) respectively at the four locations.
- 2) Solder Q002 (tape end) at the two locations.
- 3) Solder Q001 (tape top) at the two locations.
- 4) Solder D001 (tape LED) at the two locations.
- 5) Attach the LS grease cover.
- 6) Attach the LS chassis block assembly to the mechanical chassis. (Refer to 4-10.)

**Note:** Be careful of the polarities of the Hall element (H001, H002), Photo-transistor (Q001, Q002) and LED (D001).

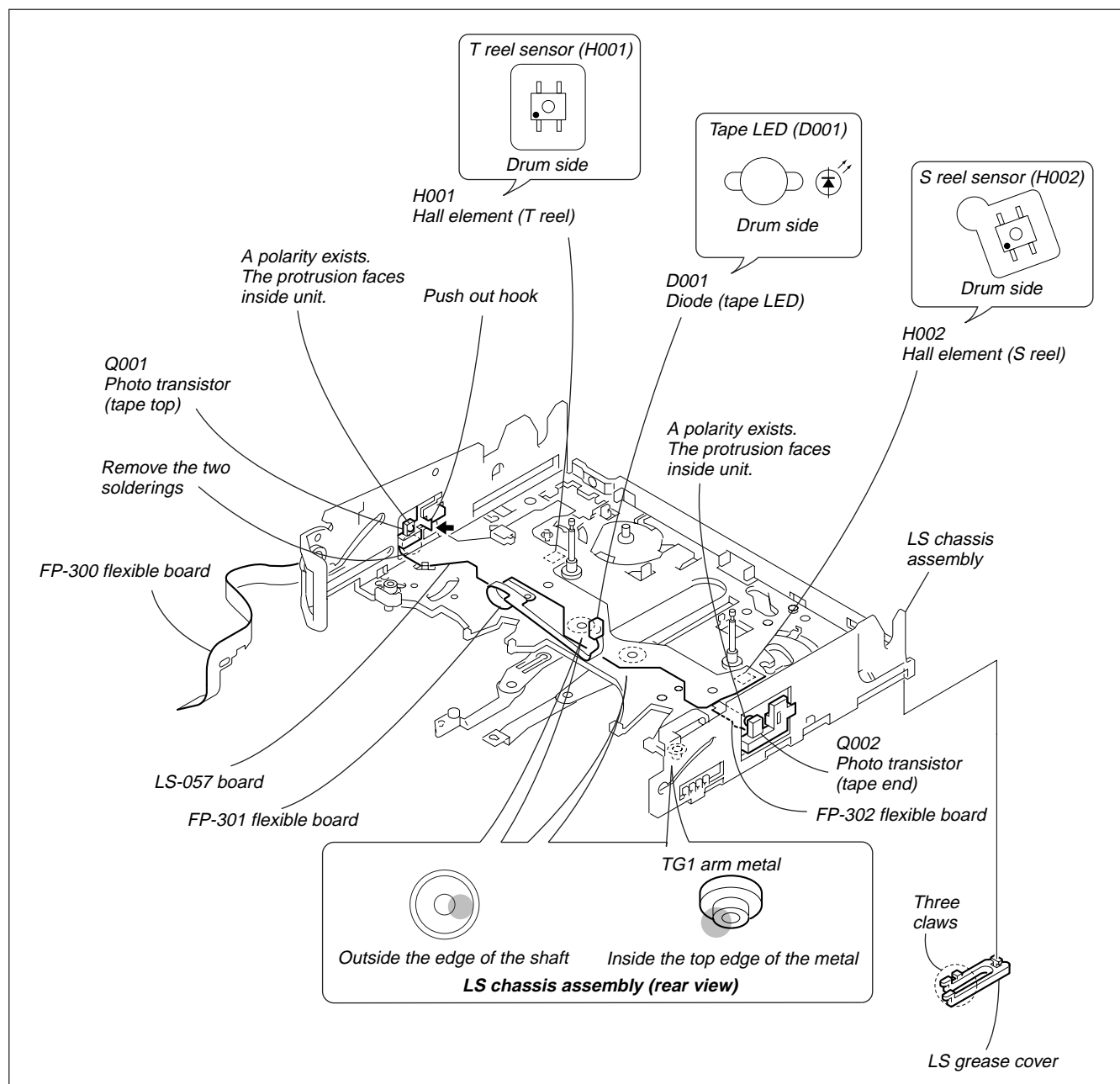


Fig. 4-14.



## 4-15. LS Guide Roller, Guide Lock Plate (T), Pinch Pusher Assembly, Eject Arm

### 1. Removal procedure

- 1) Remove the LS chassis block assembly. (Refer to 4-10.)
  - 2) Remove the LS guide roller ①.
  - 3) Remove the P pressure plate spring ②.
  - 4) Remove the HLW cut (0.98 × 3 × 0.25) ③.
  - 5) Remove the pinch pressure plate assembly ④ in the direction of the arrow ①.
  - 6) Remove the relay gear ⑤.
  - 7) Remove the screw (camera pan2 M1.4 × 1.6) ⑥.
  - 8) Remove the guide lock plate (T) ⑦ in the direction of the arrow ②.
  - 9) Remove the eject arm spring ⑧ and HLW cut (0.98 × 3 × 0.25) ⑨.
- Note:** Do not reuse the HLW cut.
- 10) Remove the eject arm ⑩.

### 2. Attachment procedure

- 1) Attach the eject arm spring ⑧ to the eject arm ⑩.
  - 2) Hook one end of the eject arm spring ⑧ on the protrusion of the main chassis block assembly and attach the eject arm to the shaft.
  - 3) Attach the HLW cut (0.98 × 3 × 0.25) ⑨.  
Do not reuse the HLW cut.
  - 4) Attach the guide lock plate T ⑦ while aligning it with the notches ③ and ④.
  - 5) Attach the screw (camera pan2 M1.4 × 1.6) ⑥.  
Tightening torque: 0.078 ± 0.01 N•m (0.8 ± 0.1 kgf•cm)
  - 6) Attach the relay gear ⑤.
  - 7) Attach the pinch pusher plate ④ with the HLW cut (0.98 × 3 × 0.25) ③.
  - 8) Attach the P pressure plate spring ②.  
Insert the concave side of the LS guide roller ① into the shaft to attach the LS guide roller.
- Note:** Insert the roller completely.
- 9) Attach the LS chassis block assembly to the mechanical chassis. (Refer to 4-10.)

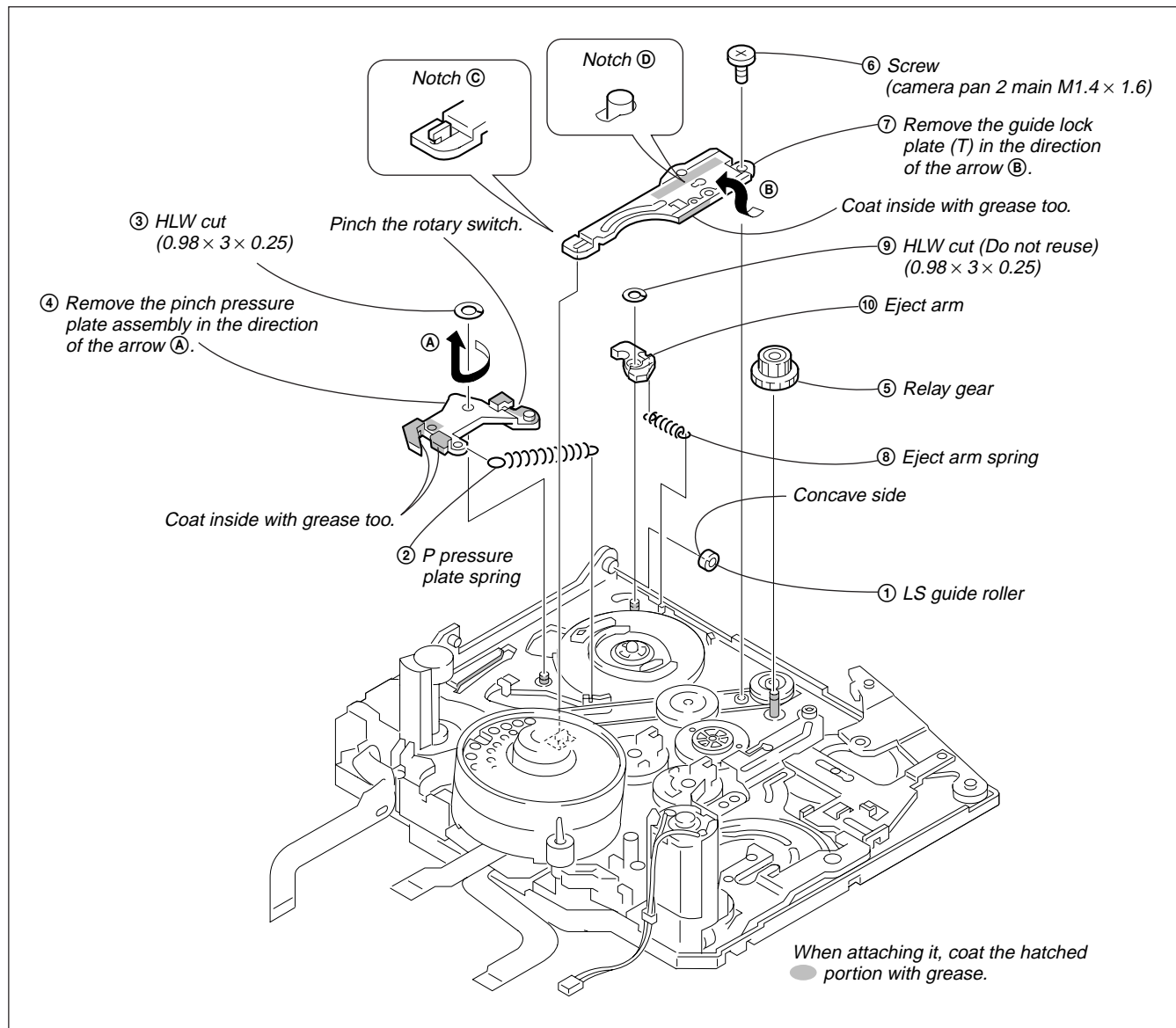


Fig. 4-15.

## 4-16. Rotary Switch, Cam Relay Gear, Change Gear Assembly, Timing Belt

Before replacing the timing belt, remove the guide rail T2 and capstan motor. (Refer to 4-4.)

### 1. Removal procedure

- 1) Remove the LS chassis block assembly. (Refer to 4-10.)
- 2) Remove the guide lock plate (T), pinch pressure assembly and eject arm. (Refer to 4-15.)
- 3) Remove the cam relay gear ①.
- 4) Remove the timing belt ②.
- 5) Remove the HLW cut ( $0.98 \times 3 \times 0.25$ ) ③ and change gear assembly ④.
- 6) Remove the four solderings ⑤ and remove the FP-299 flexible wiring board ⑥.
- 7) Push up the dowel of the rotary switch ⑦ from the bottom of the mechanism chassis assembly and remove the rotary switch in the direction of the arrow.

### 2. Attachment procedure

- 1) Insert the dowel of the rotary switch ⑦ into the hole on the mechanism chassis assembly and attach the rotary switch clockwise.
- 2) Align the FP-299 flexible wiring board ⑥ with the reference hole on the mechanism chassis and solder the flexible wiring board to the rotary switch ⑦ (at four locations).
- 3) Attach the change gear assembly ④ with the HLC cut ( $0.98 \times 3 \times 0.25$ ) ③.
- 4) Attach the timing belt ②.  
**Note:** There must be a clearance between the rotary switch ⑦ and timing belt ②.
- 5) Attach the cam relay gear ①.  
The in-phase markings of the rotary switch ⑦, cam relay gear (2) and cam relay gear (1) must be aligned.
- 6) Attach the guide lock plate (T), pinch pressure assembly and eject arm. (Refer to 4-15.)
- 7) Attach the LS chassis block assembly to the mechanical chassis. (Refer to 4-10.)
- 8) Clean the shaft of the capstan motor. (Refer to 2-2.)

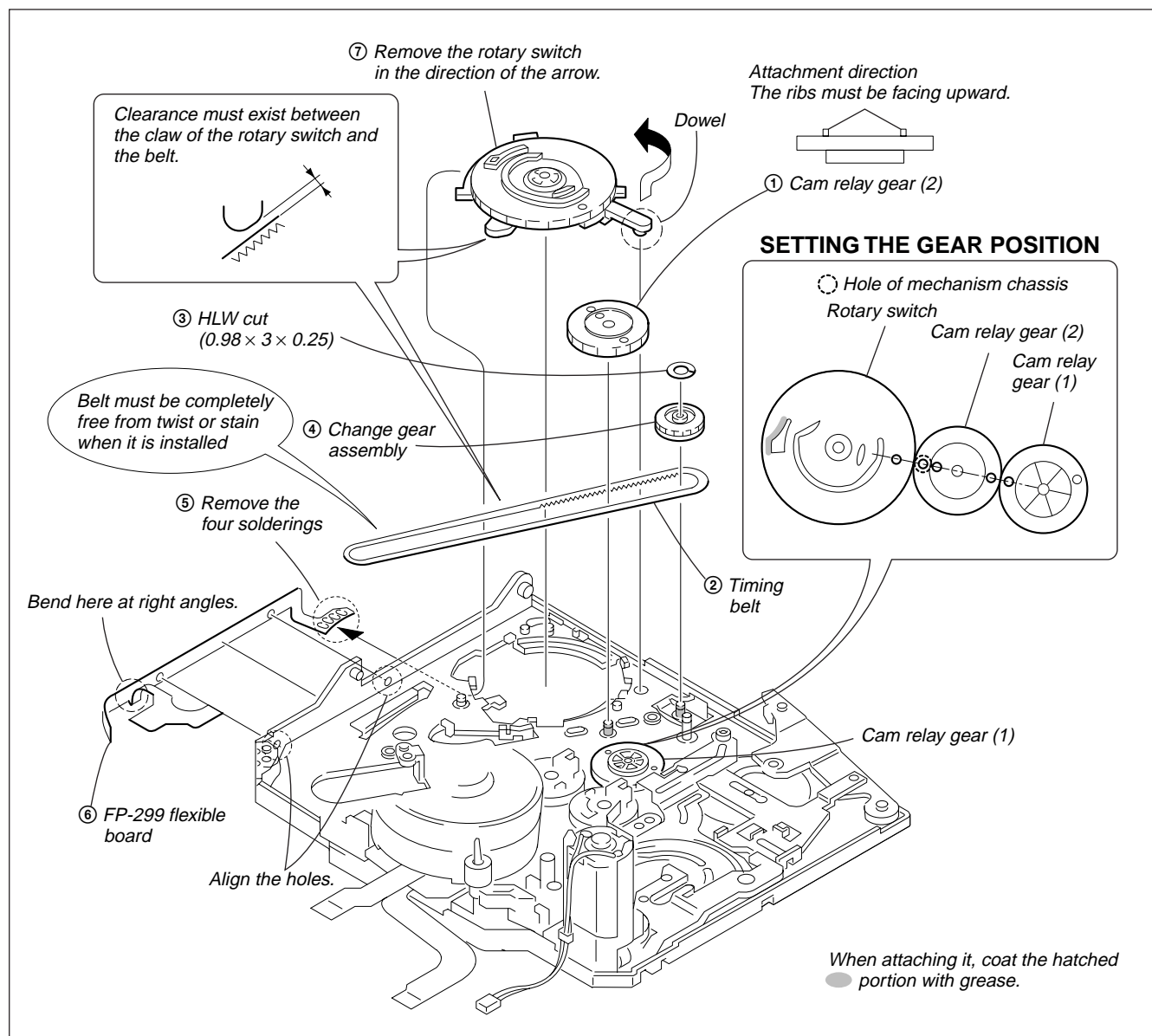


Fig. 4-16.



## 4-17. Guide Gear Assembly, Guide Gear T Assembly, Cam Relay Gear 1, Guide Lock Plate (S)

### 1. Removal procedure

- 1) Remove the LS chassis block assembly. (Refer to 4-10.)
- 2) Remove the screw (camera pan2 main M1.4 × 1.6) ①.
- 3) Remove the guide lock plate (S) ② in the direction of the arrow (A).
- 4) Remove the two stop rings (E type 1.2) ③.
- 5) Remove the guide gear (S) assembly ④ and guide gear (T) assembly ⑤.
- 6) Remove the HLW cut (0.98 × 3 × 0.25) ⑥.
- 7) Remove the cam relay gear (1) ⑦.

### 2. Attachment procedure

- 1) Attach the cam relay gear (1) ⑦ with the HLW cut (0.98 × 3 × 0.25) ⑥.  
**Note:** The in-phase markings of the cam relay gear (1) ⑦, cam gear (2) and cam relay gear must be aligned.
- 2) Attach the guide gear (T) assembly ⑤ and guide gear (S) assembly ④ to the shaft in this order and adjust the positions. Then, attach them with the two stop rings (E type 1.2) ③.  
**Note1:** The in-phase markings of the GL arm assembly, guide gear (S) ④ and guide gear (T) ⑤ must be aligned.  
**Note2:** The guide gear assembly (S/T) has a different shape respectively. Pay attention to the shapes.
- 3) Fit the guide lock plate (S) ② in the groove on the shaft and insert the portion (B) into the notch. Then, attach the plate with the screw (camera pan2 main M1.4 × 1.6) ①.  
Tightening torque:  $0.078 \pm 0.01 \text{ N} \cdot \text{m}$  ( $0.8 \pm 0.1 \text{ kgf} \cdot \text{cm}$ )
- 4) Attach the LS chassis block assembly to the mechanical chassis. (Refer to 4-10.)

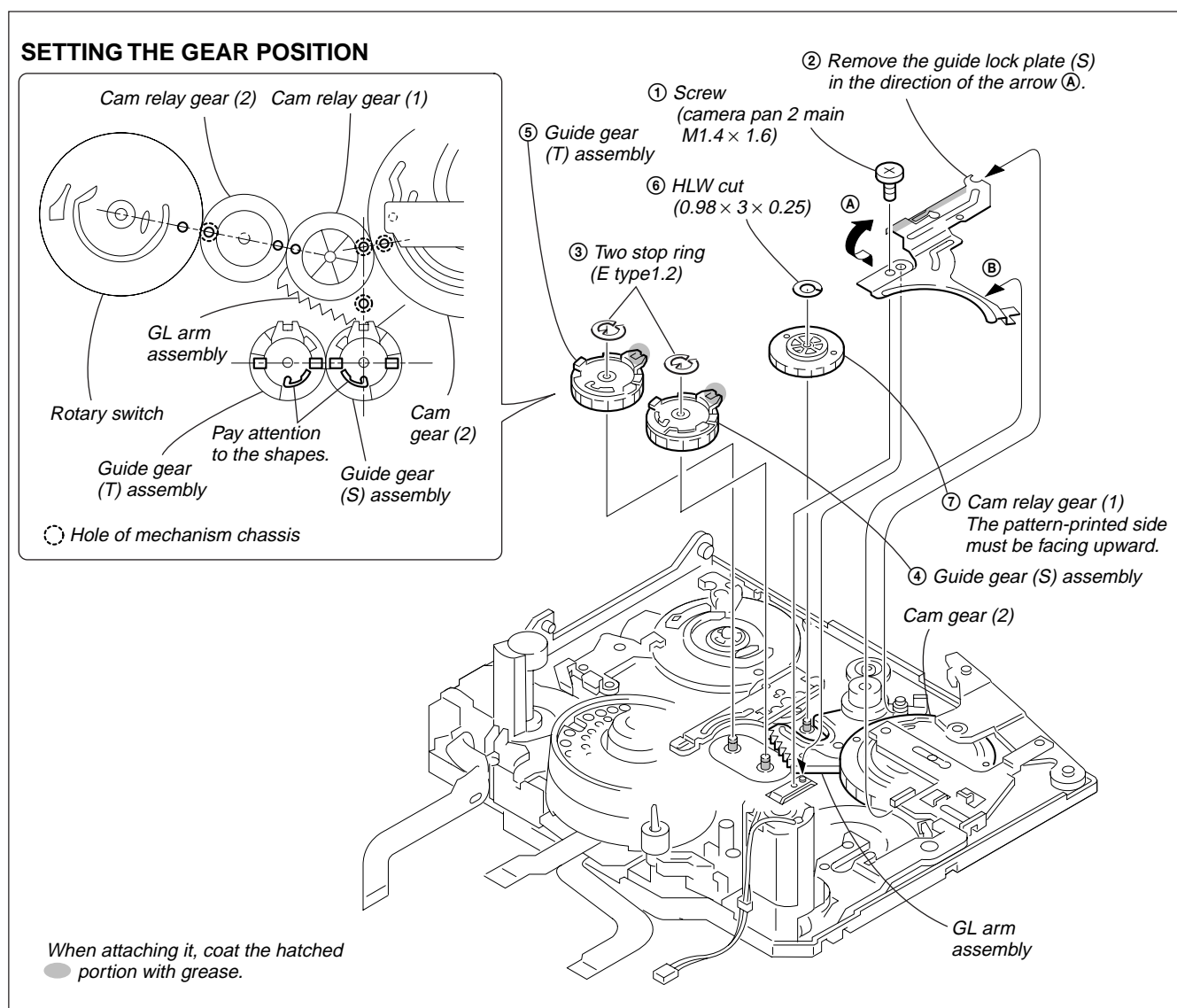


Fig. 4-17.

## 4-18. LD Gear 4, Cam Gear 1, HC Drive Arm

Remove in advance the HCL arm assembly and loading motor assembly beforehand. (Refer to 4-2.)

### 1. Removal procedure

- 1) Remove the LS chassis block assembly. (Refer to 4-10.)
- 2) Remove the guide lock plate (S). (Refer to 4-17.)
- 3) Remove the cover sheet ① and LD gear (4) ②.
- 4) Remove the T1 limiter arm ③ and cam gear (1) ④.
- 5) Remove the HC drive arm ⑤ in the direction of the arrow.

### 2. Attachment procedure

- 1) Attach the HC drive arm ⑤ under the drive base assembly.
- 2) Attach the cam gear (1) ④.  
The dowel of the HC drive arm ⑤ must be inserted into the groove on the lower side of the cam gear (1) ④.  
The in-phase markings of the cam gear (1) ④, cam gear (2) and cam relay gear (1) must be aligned.
- 3) Attach the LD gear (4) ② with the cover sheet ①.
- 4) Attach the guide plate (S).
- 5) Attach the LS chassis block assembly to the mechanical chassis. (Refer to 4-10.)
- 6) Clean the tape running path. (Refer to 2-2.)

### SETTING THE GEAR POSITION

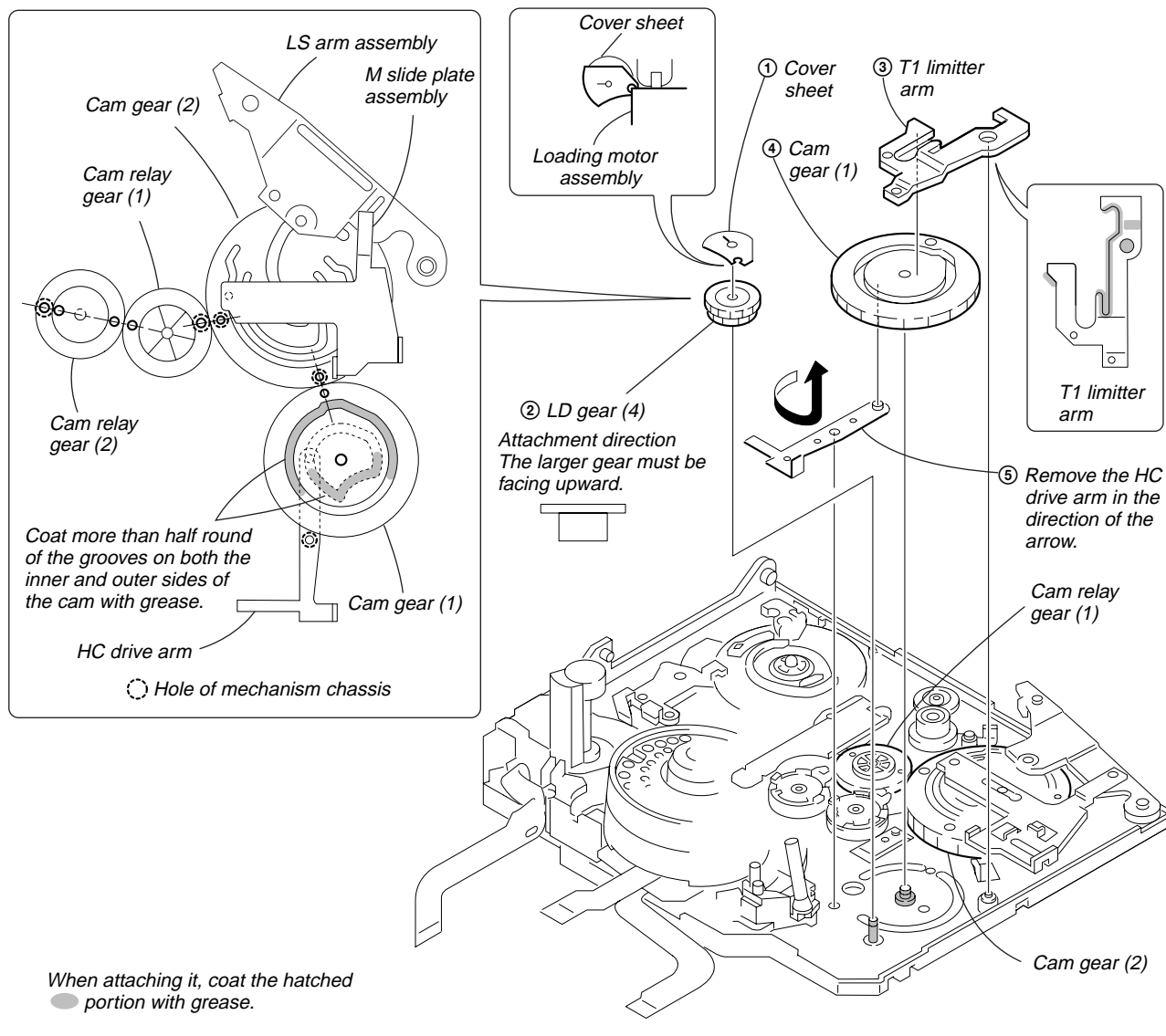


Fig. 4-18.

## 4-19. M Slide Plate Assembly, LS Arm Assembly, Cam Gear 2, GL Arm Assembly

### 1. Removal procedure

- 1) Remove the LS chassis block assembly. (Refer to 4-10.)
- 2) Remove the guide lock plate (S) (Refer to 4-17.)
- 3) Remove the relay gear ①.
- 4) Remove the M slide plate assembly ② in the direction of the arrow ①A.
- 5) Remove the LS arm assembly ③ and LS arm roller ④.
- 6) Remove the cam gear (2) ⑤.
- 7) Remove the GL arm assembly ⑥ from the lower side of the cam relay gear (1) in the direction of the arrow ①B.

**Note:** After removing the GL arm assembly, fix the guide gear (S/T) assembly.

### 2. Attachment procedure

- 1) Attach the GL arm assembly ⑥ to the shaft so that the GL arm assembly ⑥ is positioned under the cam relay gear (1) .  
**Note:** The in-phase markings of the guide gear (S/T) assembly and GL arm assembly ⑥ must be aligned.
- 2) While aligning the cam gear (2) ⑤ with the dowel of the GL arm assembly, attach the cam gear (2) ⑤.  
**Note:** The in-phase markings of the cam relay gear (1), cam gear (1) and cam gear (2) ⑤ must be aligned.
- 3) Attach the LS arm roller ④ to the LS arm assembly ③. While aligning them with the cam groove on the cam gear (2) ⑤, attach them.
- 4) Attach the M slide plate assembly ②.
- 5) Attach the relay gear ①.
- 6) Attach the guide lock plate (S). (Refer to 4-17.)
- 7) Attach the LS chassis block assembly to the mechanical chassis. (Refer to 4-10.)

**Note:** Check that the in-phase marking of each gear is aligned.

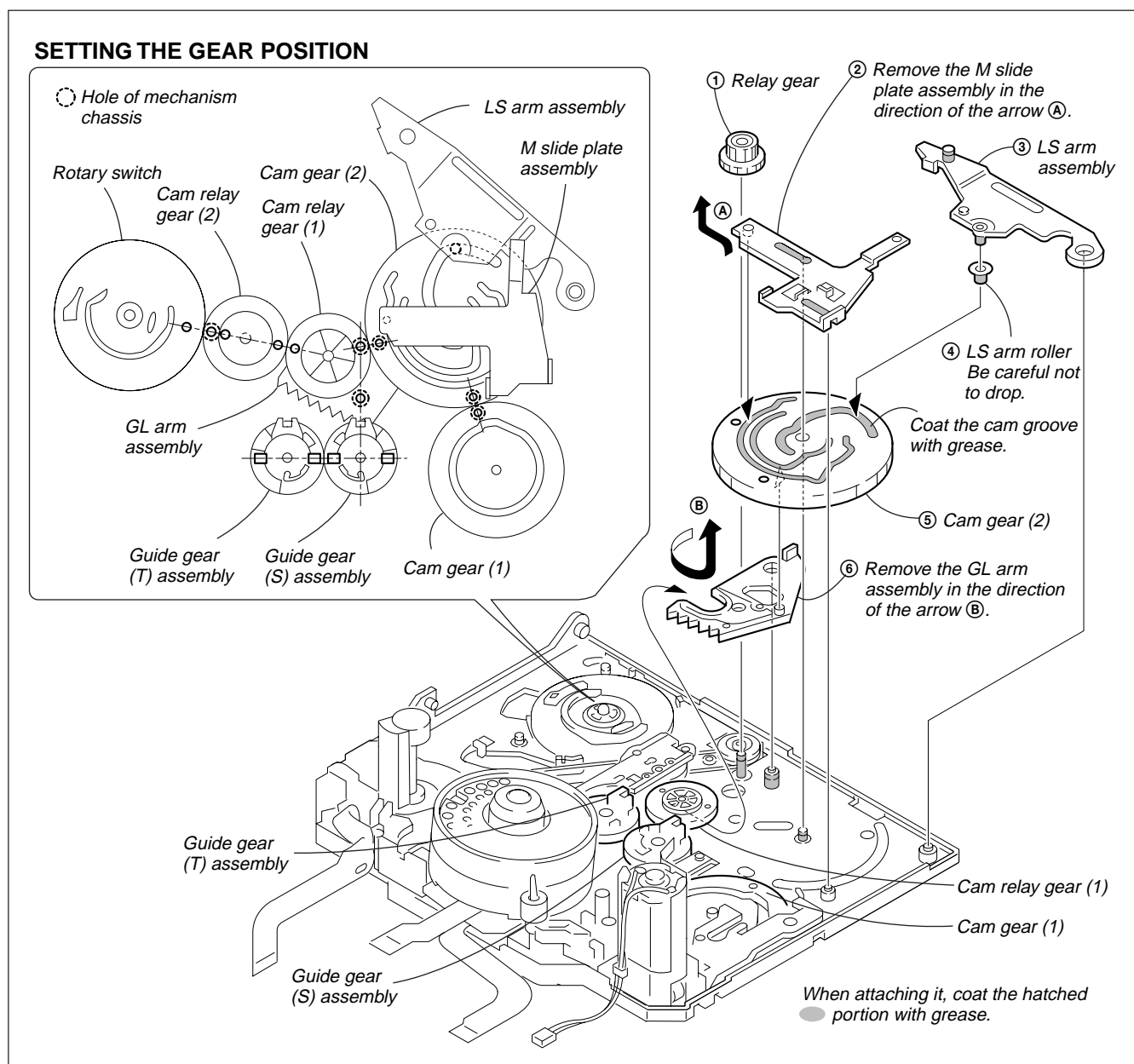


Fig. 4-19.

## 5. Adjustment

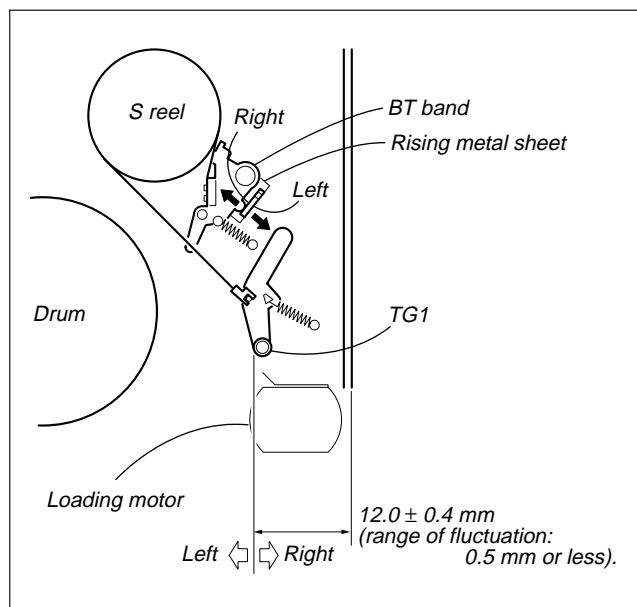
### 5-1. Check and Adjustment of TG1 Back-tension Position

#### 1. Check Procedure

- 1) Assemble the mechanism deck into the main unit.
- 2) Thread a normal tape and let the machine enter the PB (or REC) mode.
- 3) Check that the distance between the upper flange of the TG1 guide and the side surface of the LS chassis block is  $12.0 \pm 0.4$  mm (range of fluctuation: 0.5 mm or less).

#### 2. Adjustment Procedure

- 1) Remove the cassette compartment and the blind plate.
- 2) Adjust the position of the TG1 guide by changing the tilt of the rising metal sheet of the LS chassis block assembly.



**Fig. 5-1.**

## 5-2. Check and Adjustment of FWD/RVS Back-tension

### 1. Check Procedure

- 1) Install the mechanism deck in the main unit and set the take-up torque cassette (Ref. No. J-7).
- 2) Check the FWD/RVS take-up torque.  
Check the FWD torque in the PLAY state.  
Specified value: 7 to 12 gf•cm  
Check the RVS torque in the RVS state.  
Specified value: 19.5 to 29.5 gf•cm

### 2. Adjustment Procedure

- 1) If the value of the FWD torque is larger than the specifications, change the position where the TG1 arm spring is hooked in the direction of the arrow ①. If the value of the FWD torque is smaller than the specifications, change the position in the direction of the arrow ②.

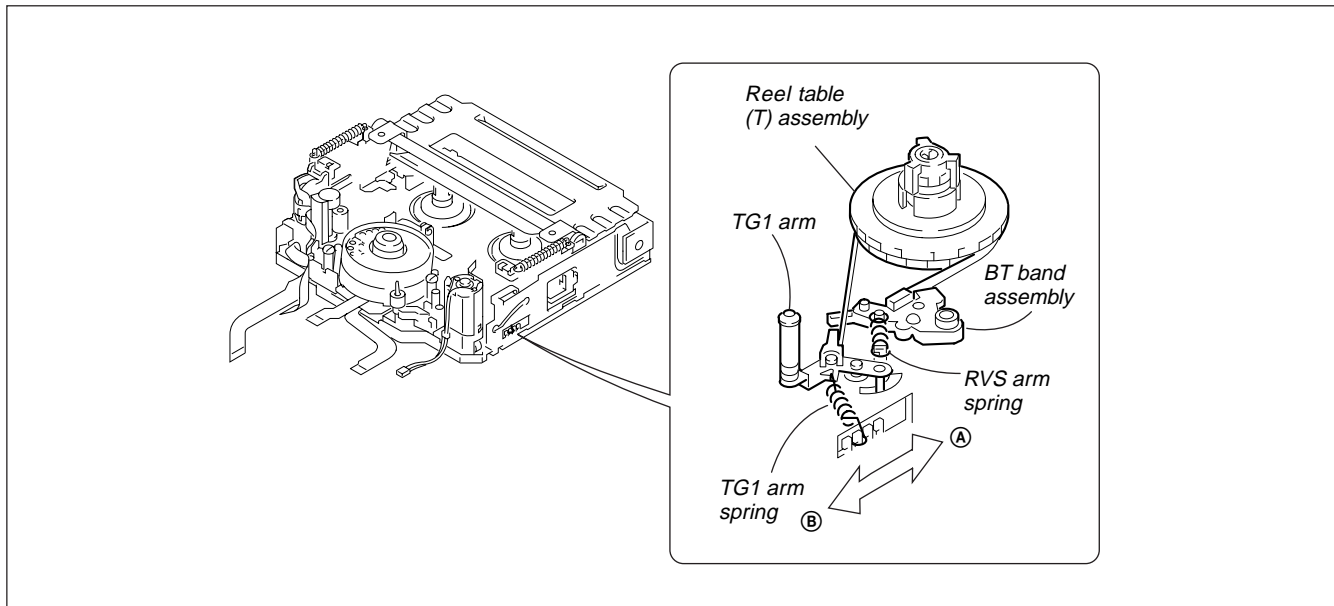


Fig. 5-2.

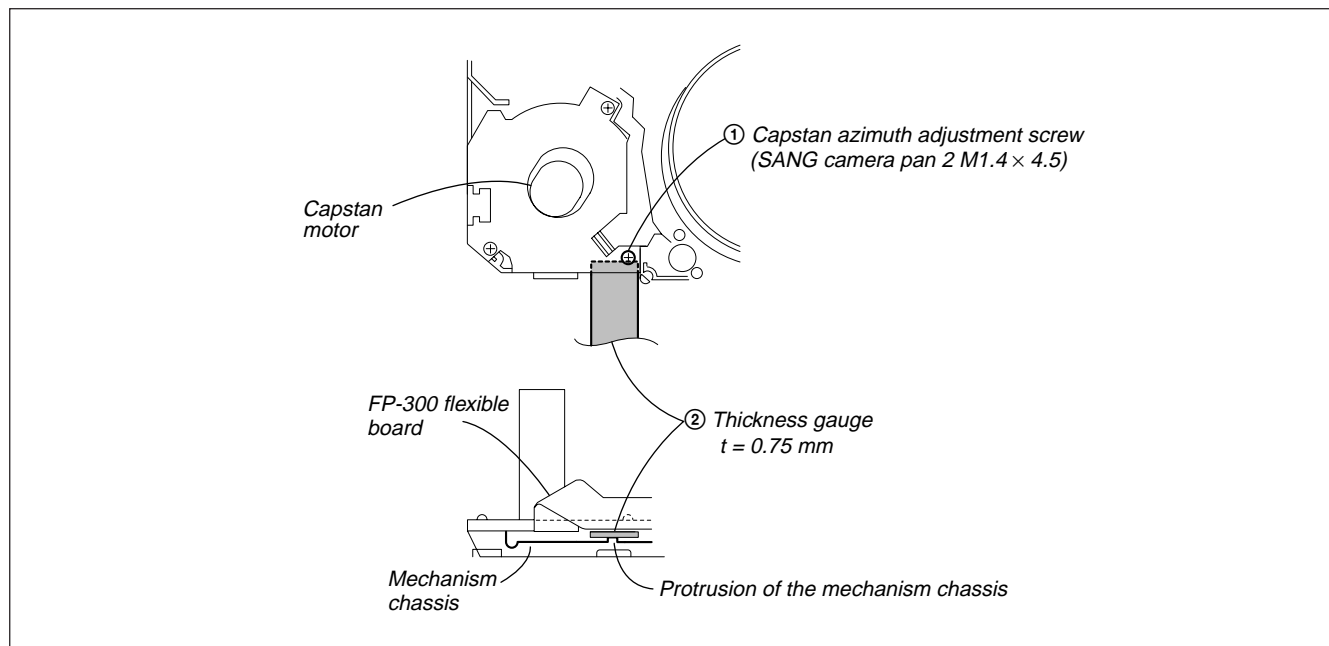
## 5-3. Capstan Motor Azimuth Position Adjustment

### 1. Check Procedure

- 1) Insert the thickness gauge (Ref. No. J-16) of 0.75 mm between the protrusion of the mechanism chassis and the capstan motor, and check the azimuth position.

### 2. Adjustment Procedure

- 1) Loosen the capstan azimuth adjustment screw (SANG camera pan 2 M1.4 × 4.5), and insert the thickness gauge (0.75 mm)(Ref. No. J-16) between the protrusion of the mechanism chassis and the capstan motor.
- 2) Slowly tighten the capstan azimuth adjustment screw until it slightly contacts the thickness gauge, and remove the thickness gauge.



**Fig. 5-3.**

## 5-4. Tape Path Adjustment

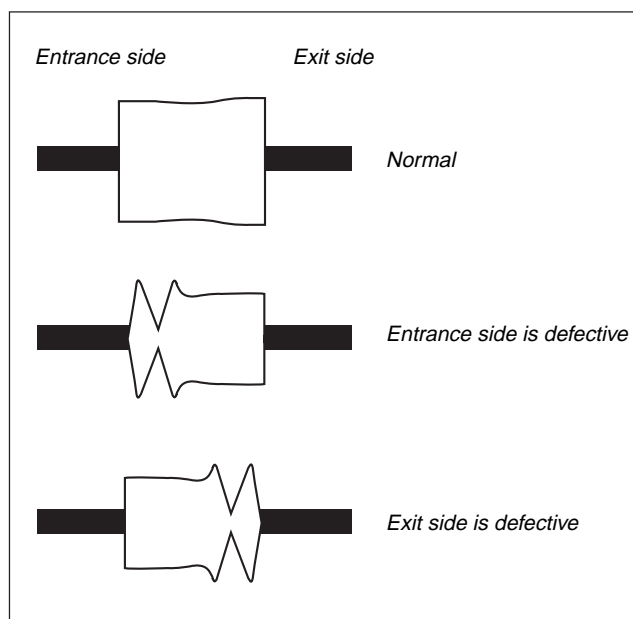
**Purpose:** Adjust the linearity of the head.

**If the adjustment is not correct:**

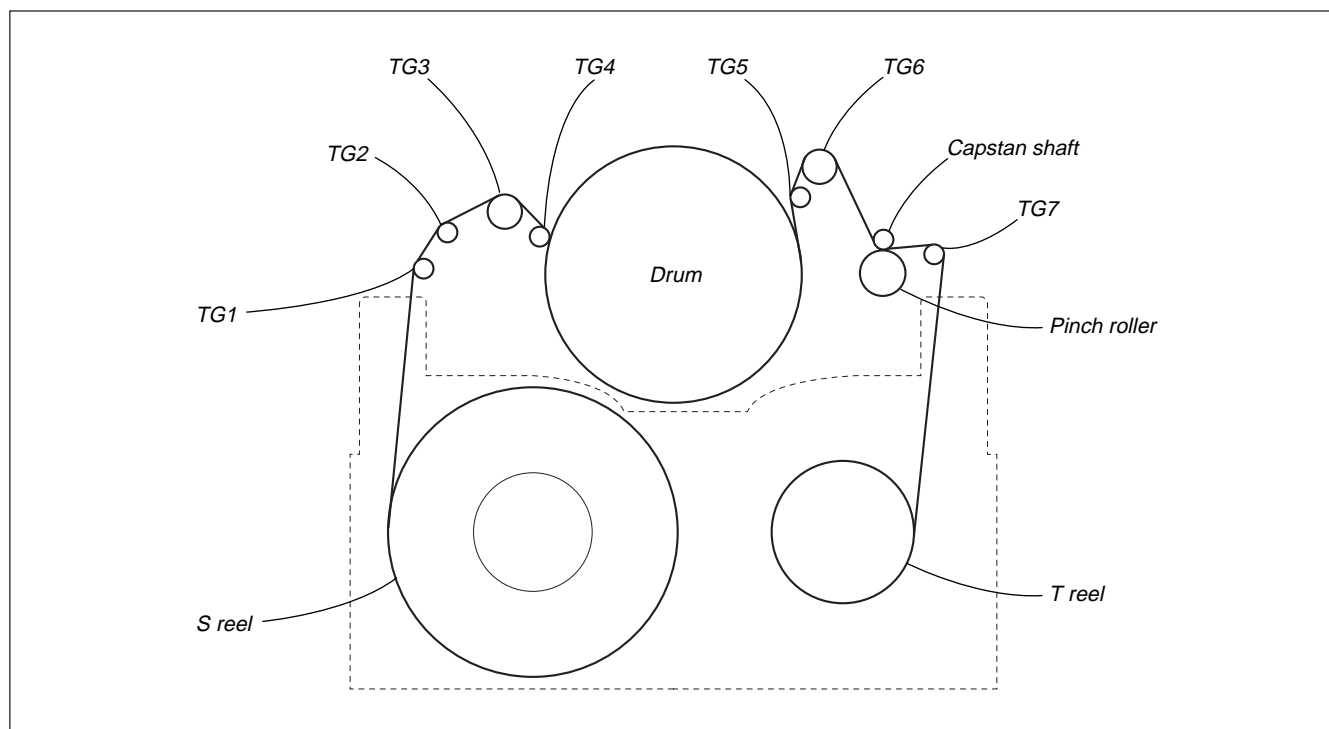
Noise appears on the top and bottom of the screen when playing back the tape that is recorded by other recorders.

### 5-4-1. Adjustment Preparation

- 1) Clean the tape running surface (tape guides, drum, capstan shaft, pinch roller).
- 2) Connect the adjustment remote commander to the remote terminal.
- 3) Set the adjustment remote commander to the PATH mode (track shift mode)\* and release the auto tracking.
- 4) Connect an oscilloscope as follows:  
CH1: Test connector' PB RF terminal  
External trigger: Test connector' RF SWP terminal
- 5) Playback the tracking alignment tape WR5-1NP (NTSC), WR5-1CP (PAL) (Ref. No. J-6).
- 6) Confirm that the RF waveform on scope is flat both at entrance side and exit side.  
If the RF waveform is not flat, perform the adjustment by referring to section 4-2.)
- 7) After the adjustment is completed, release the PATH mode (track shift mode)\*.



**Fig. 5-4.**



**Fig. 5-5.**

#### \* Setting and releasing the track shift mode

In case of the DCR-TRV230

##### Setting

1. Select page: 0, address: 01 and set data: 01.
2. Select page: F, address: 22 and set data: 88, and press the PAUSE button.
3. Select page: 2, address: 2E and set data: 02. (Note)

##### Releasing

1. Select page: 0, address: 01 and set data: 01.
2. Select page: F, address: 22 and set data: 80, and press the PAUSE button.
3. Select page: 2, address: 2E and set data: 00.
4. Select page: 0, address: 01 and set data: 00. (Note)

**Note:** In case of the Digital8 only, set the data of page: 2, address: 2E.

#### 5-4-2. Tracking Adjustment (Refer to Fig. 5-6.)

- 1) Playback the tracking alignment tape WR5-1NP (NTSC), WR5-1CP (PAL) (Ref. No. J-6).
- 2) Adjust the No.3 guide until the envelope at the entrance side waveform becomes flat.
- 3) Adjust the No.6 guide until the envelope at the exit side waveform becomes flat.

☆ The TG-3/6 zenith adjustment screws do not need to be adjusted.

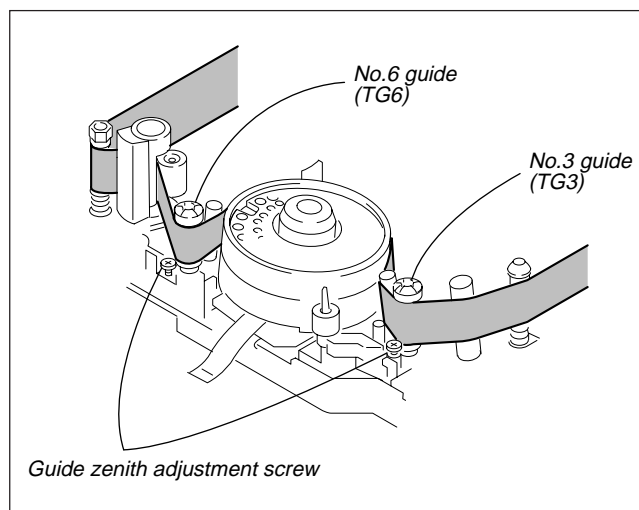


Fig. 5-6.

#### 5-4-3. No.7 Guide (TG7) Adjustment (Refer to Fig. 5-7.)

- 1) Playback the tape and set the REV mode.
- 2) Confirm that tape slack does not occur in between the No.6 guide (TG6) ① and capstan ②. If any tape slack occurs, rotate the TG7 nut ④ of the No.7 guide (TG7) ③ to remove the tape slack.
- 3) Playback the tape again and confirm that tape slack does not occur between the capstan ② and No.7 guide (TG7) ③. If the tape slack occurs exceeding the specifications (specifications: 0.5 mm or less), rotate the TG7 nut ④ to make the tape slack below the specifications (0.5 mm). When the tape slack between the No.6 guide (TG6) ① and capstan ② is 0.3 mm or less in the REV mode, it means that the adjustment is completed.

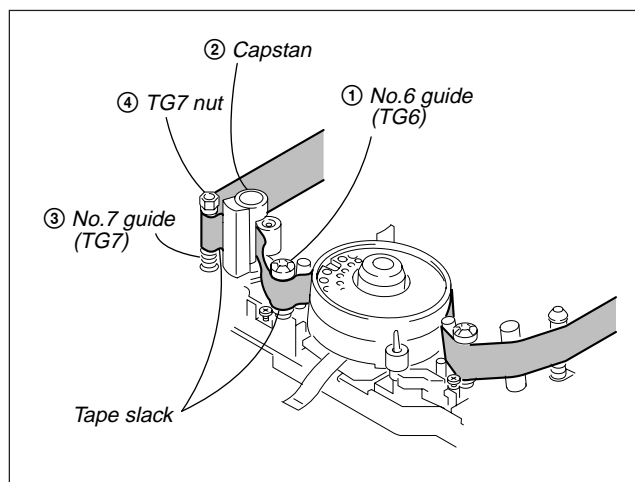
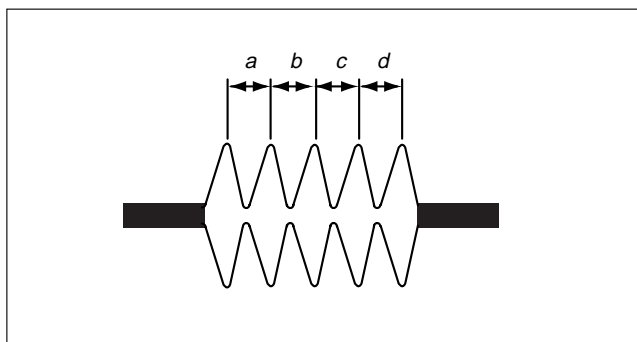


Fig. 5-7.



#### 5-4-4. CUE and REV Waveform Check (Refer to Fig. 5-8)

- 1) Playback the tracking alignment tape WR5-1NP (NTSC), WR5-1CP (PAL)(Ref. No. J-6) and enter the REV mode. Confirm on an oscilloscope that the pitches between the peaks of the RF waveform are equally spaced for 5 seconds or more. If pitches between peaks of the RF waveform are not equal, perform sections “5-4-2 Tracking Adjustment” and “5-4-3 No. 7 Guide (TG7) Adjustment”.
- 2) Enter the UCE mode. Confirm on an oscilloscope that the pitches between the peaks of the RF waveform are equally spaced for 5 seconds or more. If pitches between peaks of the RF waveform are not equal, perform section “5-4-2 Tracking Adjustment”.

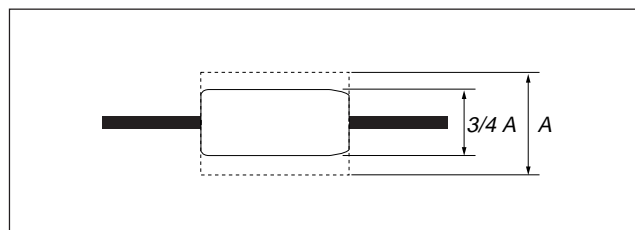


**Fig. 5-8.**

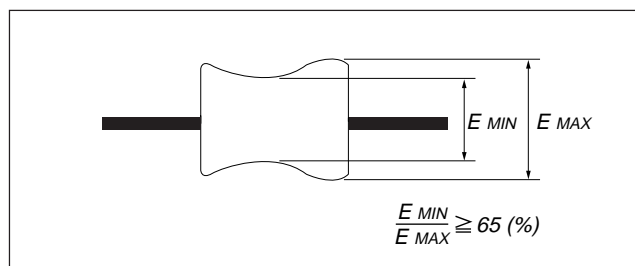
#### 5-4-5. Check upon Completion of Adjustment

##### 5-4-5-1. Tracking Check

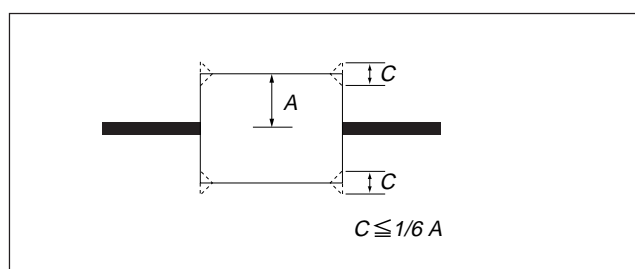
- 1) Playback the tracking alignment tape in the PATH mode. Compare the amplitude of the RF waveform in the AUTO tracking mode and with that in the PATH mode. Confirm that the amplitude of the RF waveform decreases to about 3/4 when the tracking alignment tape is switched from the AUTO tracking mode to the PATH mode. (Refer to Fig. 5-9)
- 2) During step 1, confirm that the minimum amplitude ( $E_{MIN}$ ) is 65% or more of the maximum amplitude ( $E_{MAX}$ ) of the RF waveform. (Refer to Fig. 5-10)
- 3) Confirm that the RF waveform does not fluctuate too excessively.(Refer to Fig. 5-11)



**Fig. 5-9.**



**Fig. 5-10.**



**Fig. 5-11.**

#### 5-4-5-2. Rise-up Check (Refer to Fig. 5-12)

- 1) Playback the tracking alignment tape WR5-1NP (NTSC), WR5-1CP (PAL)(Ref. No. J-6).
- 2) Turn OFF the Track Shift mode.
- 3) Eject the cassette tape once. Then insert the cassette tape for loading again.
- 4) Confirm that the RF waveform rises up to the flat envelope within 3 seconds after the machine enters the PLAY mode. Check also that the tape slack does not occur at around the pinch roller.
- 5) Run the tape in the CUE/REV and the FF/REW mode. Then playback the tracking alignment tape and confirm the RF waveform rises up to the flat envelope within 3 seconds after the machine enters the PLAY mode. Check also that the tape slack does not occur at around the pinch roller.
- 6) Repeat the above steps 3) to 5) once again for re-check.

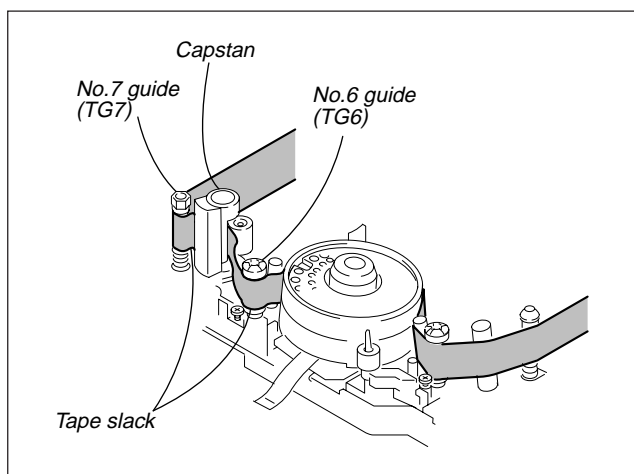


Fig. 5-12.

#### 5-4-5-3. Tape Run Check (Refer to Fig. 5-13)

- 1) Playback the thin video tape such as P6-120MP (NTSC), P6-90MP (PAL). Confirm that tape does not float and the major tape curl of more than 0.3 mm does not occur at the top flange of the No. 3 guide (TG3), at the top flange of the No. 6 guide (TG6) and at both the top and bottom flanges of the No. 7 guide (TG7).
- 2) Confirm that tape does not float and the major tape curl of more than 0.3 mm does not occur at the flanges of the respective guide when the FF button is pressed during PLAY mode to enter the CUE mode and when the REW button is pressed during PLAY mode to enter the REV mode.

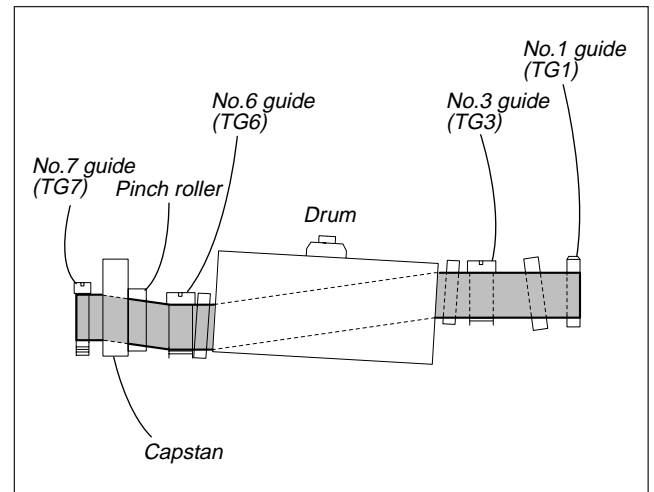
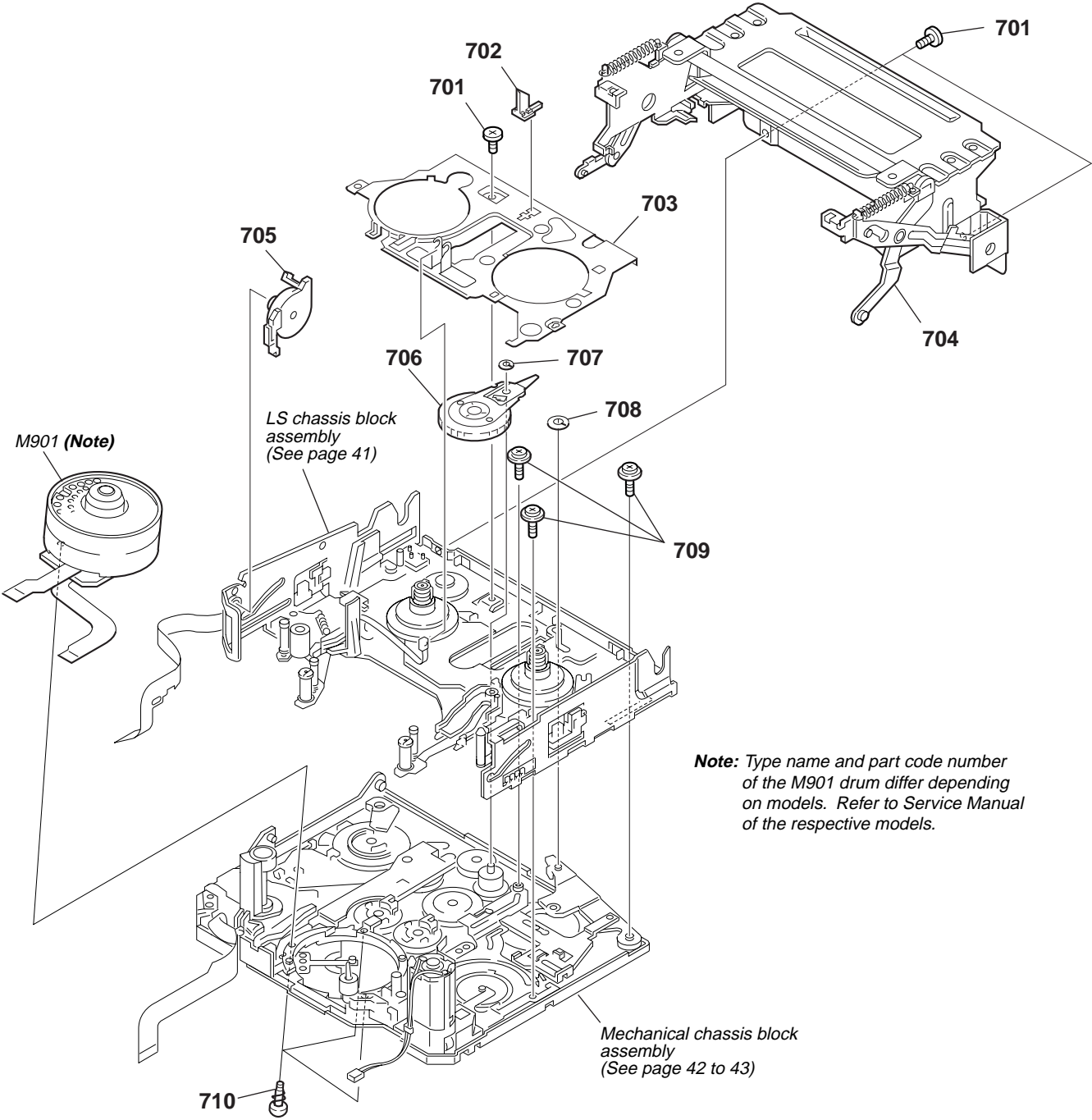


Fig. 5-13.

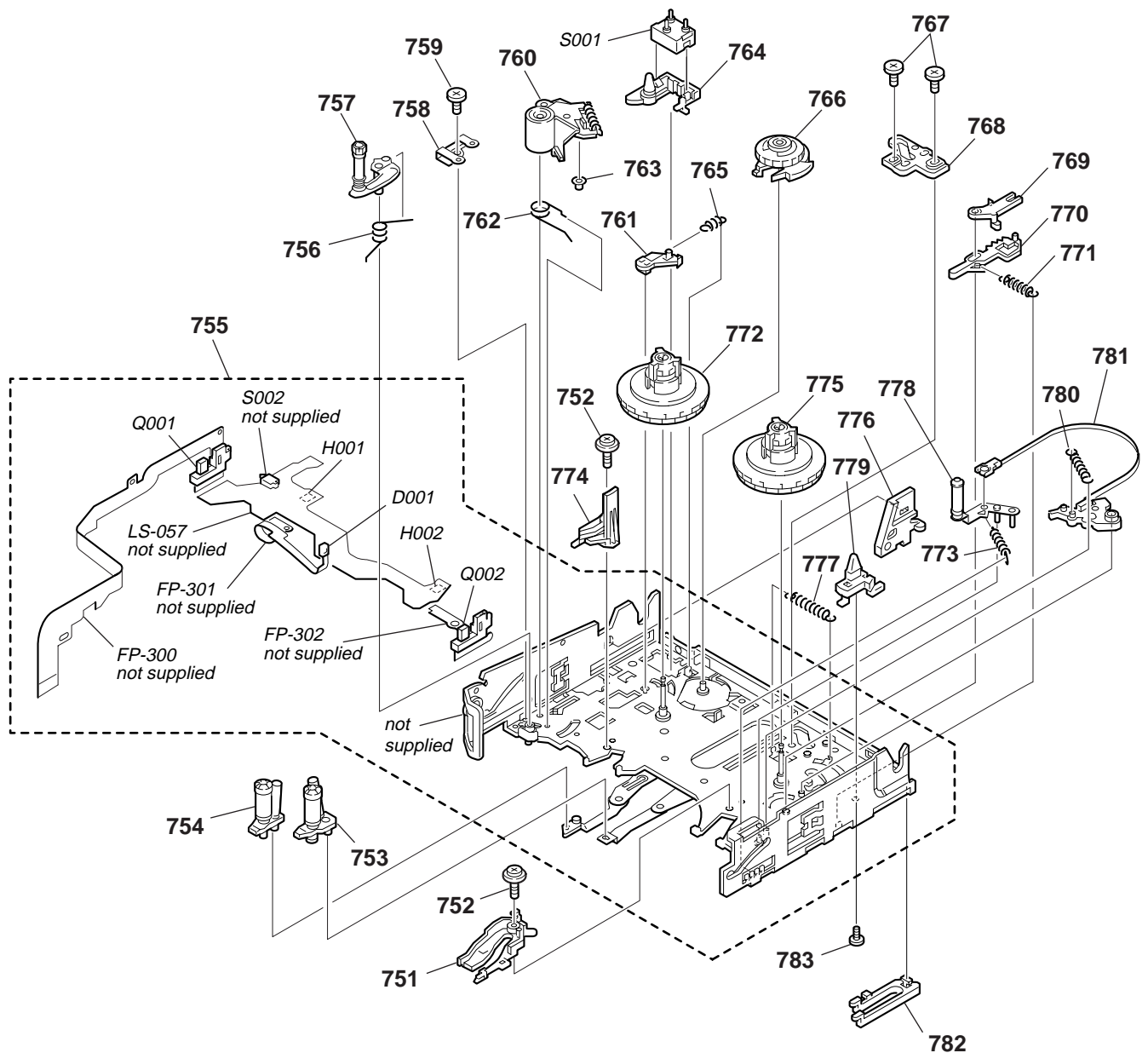
6. Exploded Views

6-1. Cassette Compartment Assy, Drum Assy



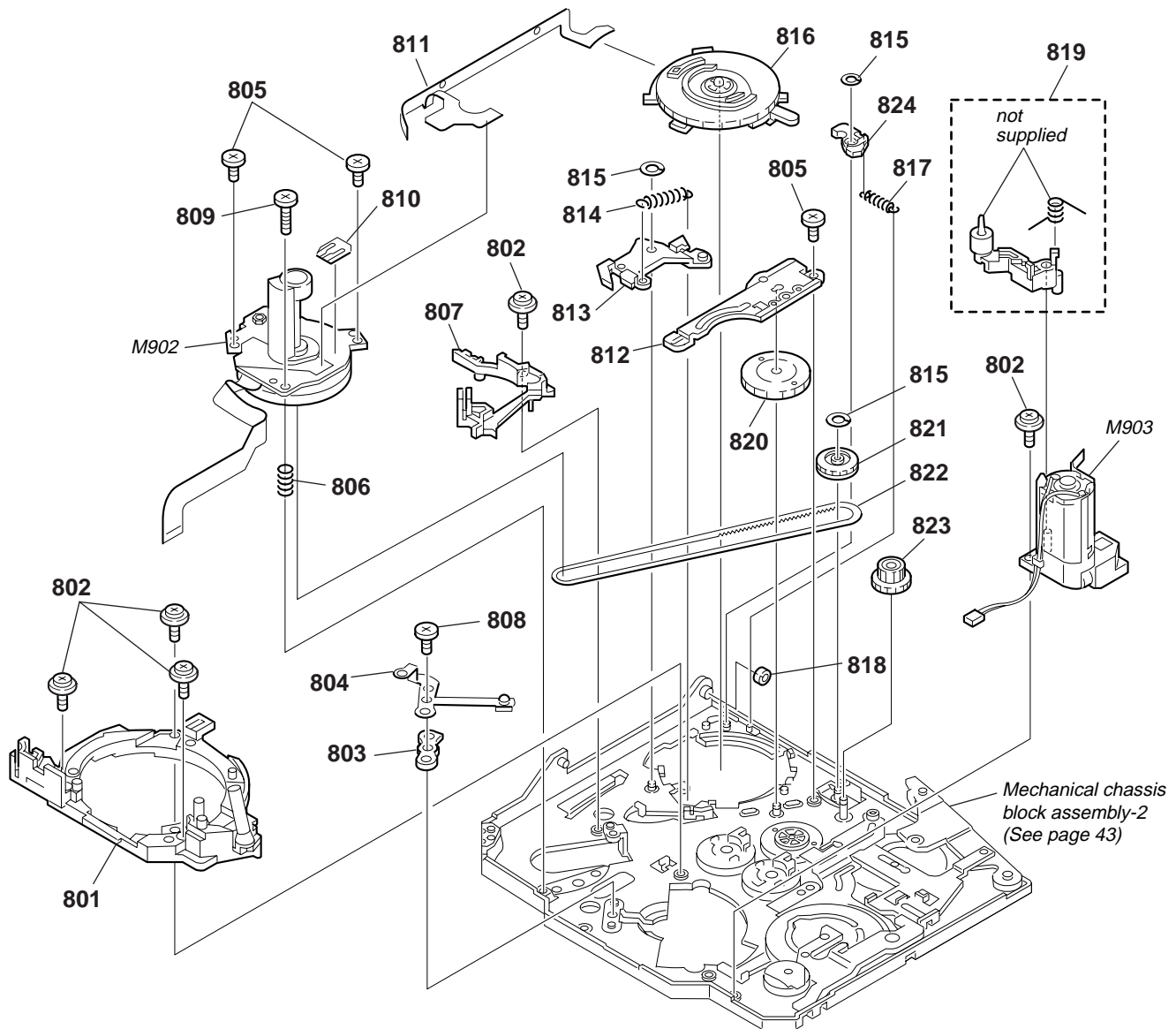
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
701	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA		707	3-065-840-01	CUT (0.98X3X0.13), LUMILER (W)	
702	3-065-895-01	LEVER, REEL RELEASE		708	3-065-935-01	HLC CUT (1.8X4X0.5)	
703	3-065-896-01	PLATE, BLIND		709	3-947-503-01	SCREW (M1.4)	
704	X-3951-298-1	CASSETTE COMPARTMENT ASSY		710	X-3951-299-1	SCREW ASSY, DRUM FITTING	
705	X-3951-302-1	DAMPER ASSY		M901	— Note —	DRUM	
706	X-3951-297-1	GEAR ASSY, R DRIVE					

## 6-2. LS Chassis Block Assembly



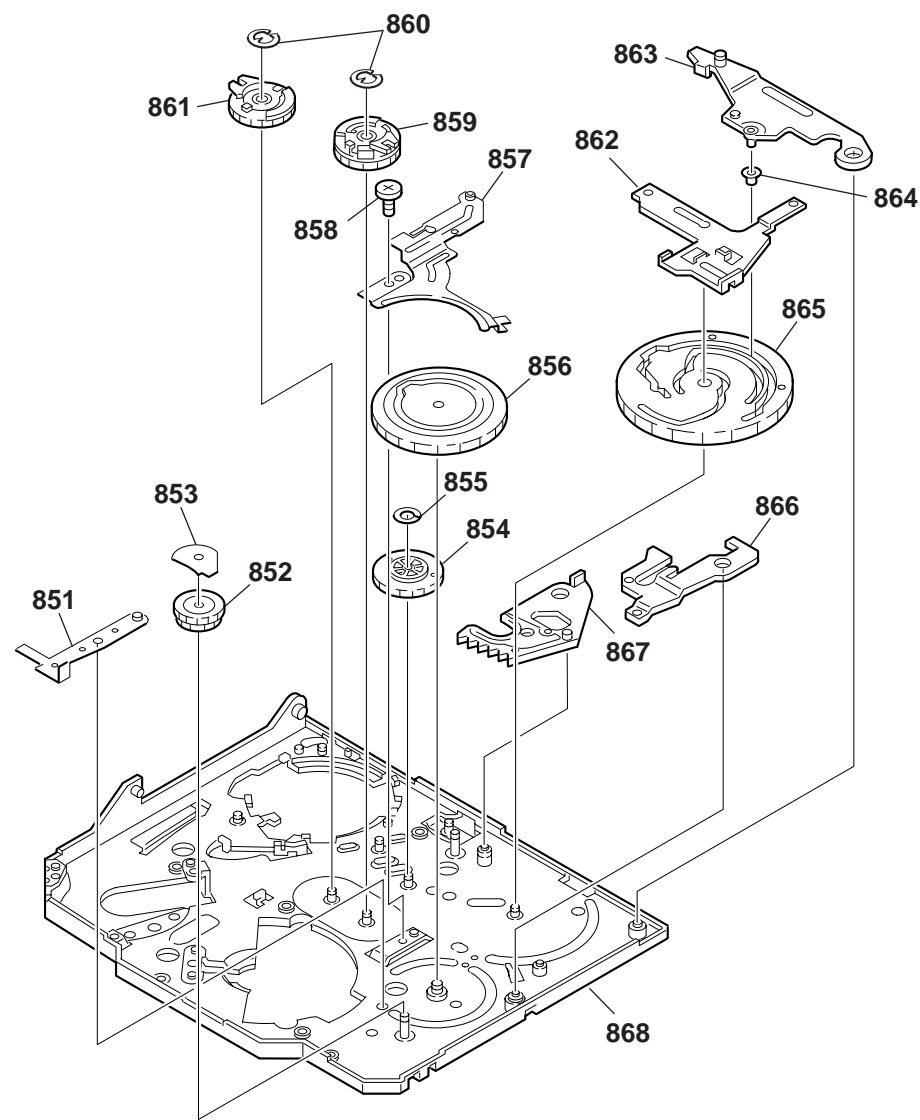
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
751	3-065-822-01	RAIL (S), GUIDE		771	3-065-830-01	SPRING, S RATCHET	
752	3-947-503-01	SCREW (M1.4)		772	X-3951-288-1	TABLE (T) ASSY, REEL	
753	A-7096-416-A	BASE (S) BLOCK ASSY, GUIDE		773	3-065-819-01	SPRING, TG1 ARM	
754	A-7096-415-A	BASE (T) BLOCK ASSY, GUIDE		774	3-065-821-01	RAIL (T), GUIDE	
755	A-7096-426-A	CHASSIS ASSY, LS		775	X-3951-289-1	TABLE (S) ASSY, REEL	
756	3-065-802-01	SPRING, TG7 ARM		776	3-065-833-01	GUIDE, LOCK	
757	A-7096-414-A	ARM BLOCK ASSY, TG7		777	3-065-831-01	PLATE (SPR), RE RETURN	
758	3-065-801-01	RETAINER, TG7		778	X-3951-304-1	ARM ASSY, TG1	
759	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA		779	3-065-835-01	GUIDE (S), CASSETTE	
760	X-3951-303-1	ARM ASSY, PINCH		780	3-065-820-01	SPRING, RVS ARM	
761	3-065-823-01	ARM, T RATCHET		781	X-3951-296-1	BAND (ASSY), BT	
762	3-065-794-01	ROAD (SPR), PINCH ARM		782	3-065-836-01	COVER, LS GREASE	
763	3-065-792-01	ROLLER, P LIM ARM		783	3-067-167-01	SCREW (M1.4X2), CAMERA TAPPING	
764	3-065-834-01	GUIDE (T), CASSETTE		D001	8-719-988-42	DIODE GL453 (TAPE LED)	
765	3-065-824-01	SPRING, T RATCHET		H001	8-719-033-37	ELEMENT, HALL HW-105C (T REEL)	
766	A-7096-417-A	SOFT ASSY, T		H002	8-719-033-37	ELEMENT, HALL HW-105C (S REEL)	
767	7-627-852-38	SCREW,PRECISION +P1.7X1.8 TYPE3		Q001	8-729-907-25	PHOTO TRANSISTOR PT4850F (TAPE TOP)	
768	3-065-832-01	PLATE, LS CAM		Q002	8-729-907-25	PHOTO TRANSISTOR PT4850F (TAPE END)	
769	3-065-828-01	ARM, S RATCHET		S001	1-692-614-11	SWITCH, PUSH (3 KEY) (REC PROOF)	
770	3-065-829-01	PLATE, S RATCHET (RE)					

### 6-3. Mechanical Chassis Block Assembly-1



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
801	A-7096-422-A	BASE ASSY, DRUM		814	3-065-881-01	SPRING, P PRESSURE PLATE	
802	3-947-503-01	SCREW (M1.4)		815	3-065-934-01	HLW CUT 0.98X3X0.25	
803	3-065-928-01	SPACER, GROUND		816	1-786-096-11	SWITCH, ROTARY	
804	3-065-927-01	GROUND, DRUM		817	3-065-898-01	SPRING, EJECT ARM	
805	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA		818	3-065-870-01	ROLLER, LS GUIDE	
806	3-067-154-01	SPRING, CAPSTAN		819	A-7096-421-A	ARM ASSY, HCL	
807	3-065-931-01	RAIL (T2), GUIDE		820	3-065-918-01	GEAR (2), CAM RELAY	
808	X-3947-398-1	SCREW ASSY, M1.7 PW		821	A-7096-419-A	GEAR ASSY, CHANGE	
809	3-065-933-01	PAN (2 MAIN 1.4X4.5), CAMERA		822	3-065-902-01	BELT, TIMING	
810	1-677-049-11	FP-228 FLEXIBLE BOARD (DEW SENSOR)		823	3-065-905-01	GEAR, RELAY	
811	1-680-434-11	FP-299 FLEXIBLE BOARD		824	3-065-882-01	ARM, EJECT	
812	3-065-877-01	PLATE (T), GUIDE LOCK		M902	8-835-701-01	MOTOR, DC SCE13A/C-NP (CAPSTAN)	
813	X-3951-301-1	PLATE ASSY, PINCH PRESSURE		M903	A-7096-420-A	MOTOR ASSY, LD (LOADING)	

6-4. Mechanical Chassis Block Assembly-2



Ref. No.	Part No.	Description
851	3-065-920-01	ARM, HC DRIVE
852	3-065-913-01	GEAR (4), LD
853	3-065-914-01	SHEET, COVER
854	3-065-917-01	GEAR (1), CAM RELAY
855	3-065-934-01	HLW CUT 0.98X3X0.25
856	3-065-915-01	GEAR (1), CAM
857	3-065-878-01	PLATE (S), GUIDE LOCK
858	3-065-932-01	PAN (2 MAIN M1.4X1.6), CAMERA
859	A-7096-413-A	GEAR (S) ASSY, GUIDE

Ref. No.	Part No.	Description
860	7-624-101-04	STOP RING 1.2 (E TYPE)
861	A-7096-412-A	GEAR (T) ASSY, GUIDE
862	X-3951-307-1	PLATE ASSY, M SLIDE
863	X-3951-305-1	ARM ASSY, LS
864	3-065-901-01	ROLLER, LS ARM
865	3-065-916-01	GEAR (2), CAM
866	3-065-919-01	ARM, T1 LIMITTER
867	X-3951-308-1	ARM ASSY, GL
868	X-3951-300-1	CHASSIS ASSY, MECHANICAL

7. Printed Wiring Boards and Schematic Diagrams

